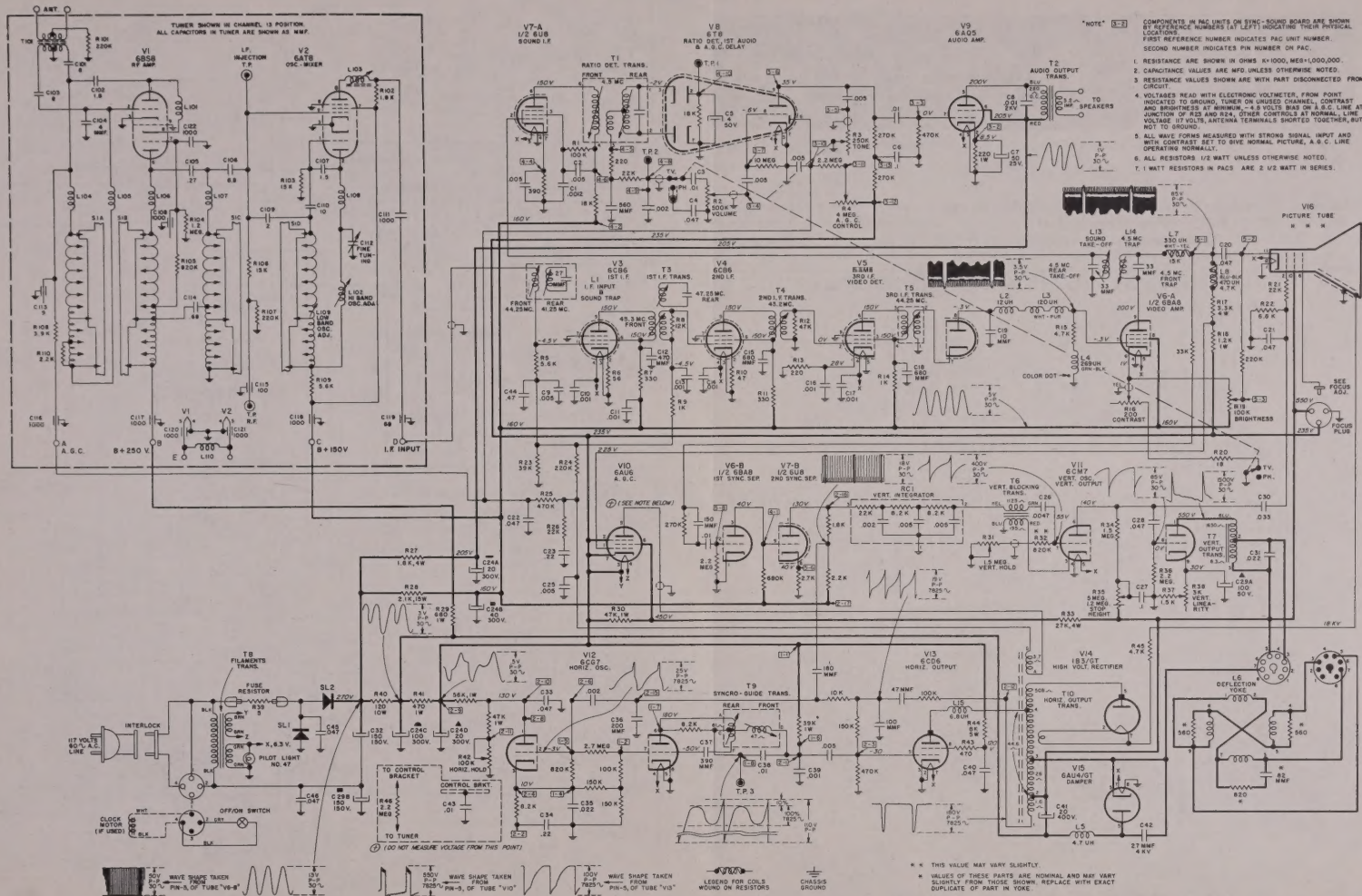
SILVERTONE MODELS 7132, 7134 (CHASSIS 528.52040)


TUNER SHOWN IN CHANNEL 13 POSITION. ALL CAPACITORS IN TUNER ARE SHOWN AS MMF.
V1 6BS8 RF AMP
V2 6AT8 OSC.-MIXER
V7-A 1/2 6U8 SOUND I.F.
V8 6T8 RATIO DET., 1ST. AUDIO & A.G.C. DELAY
V9 6AQ5 AUDIO AMP.
V3 6CB6 1ST I.F.
V4 6CB6 2ND I.F.
V5 6JM8 3RD.I.F. VIDEO DET.
V6-A 1/2 6BA8 VIDEO AMP.
V6-B 1/2 6BA8 1ST SYNC. SEP.
V7-B 1/2 6U8 2ND SYNC. SEP.
V10 6AU6 A.G.C.
V11 6CM7 VERT. OSC.-VERT. OUTPUT
V12 6GG7 HORIZ. OSC.
V13 6CD6 HORIZ. OUTPUT
V14 1B3/GT HIGH VOLT. RECTIFIER
V15 6AU4/GT DAMPER
V16 PICTURE TUBE
T1 RATIO DET. TRANS.
T2 AUDIO OUTPUT TRANS.
T3 1ST I.F. TRANS.
T4 2ND I.F. TRANS.
T5 3RD I.F. TRANS.
T6 VERT. BLOCKING TRANS.
T7 VERT. OUTPUT TRANS.
T8 FILAMENTS TRANS.
T9 SYNCRO-GUIDE TRANS.
T10 HORIZ. OUTPUT TRANS.
L1 I.F. INPUT & SOUND TRAP
L2 12 UH
L3 120 UH
L4 280 UH
L5 4.7 UH
L6 DEFLECTION YOKE
L7 330 UH
L13 SOUND TAKE-OFF
L14 4.5 MC TRAP
L15 6.8 UH
S1 BAND SWITCH
S2 FINE TUNING
S3 4.5 MC REAR TAKE-OFF
S4 4.5 MC FRONT TRAP
SL1 SLIDE SWITCH
SL2 SLIDE SWITCH
ANT.
A.G.C.
B+250 V.
B+150V.
I.K INPUT
TO SPEAKERS
SEE FOCUS ADJ.
FOCUS PLUG
BRIGHTNESS
CONTRAST
COLOR DOT
TV. PH.
VERT. HOLD
VERT. HEIGHT
VERT. LINEARITY
HORIZ. HOLD
HORIZ. OSC. ADJ.
VERT. INTEGRATOR
FUSE RESISTOR
INTERLOCK
117 VOLT 60 CY. A.C. LINE
PILOT LIGHT NO. 47
OFF/ON SWITCH
CLOCK MOTOR (IF USED)
TO CONTROL BRACKET
CONTROL BRKT.
TO TUNER
(DO NOT MEASURE VOLTAGE FROM THIS POINT)
T.P.1
T.P.2
T.P.3
WAVE SHAPE TAKEN FROM PIN-3, OF TUBE "V6-B"
WAVE SHAPE TAKEN FROM PIN-5, OF TUBE "V10"
WAVE SHAPE TAKEN FROM PIN-5, OF TUBE "V13"
LEGEND FOR COILS WOUND ON RESISTORS
CHASSIS GROUND
"NOTE"
COMPONENTS IN PAC UNITS OR SYNC.-SOUND BOARD ARE SHOWN BY REFERENCE NUMBERS (AT LEFT) INDICATING THEIR PHYSICAL LOCATIONS.
FIRST REFERENCE NUMBER INDICATES PAC UNIT NUMBER.
SECOND NUMBER INDICATES PIN NUMBER ON PAC.
1. RESISTANCE ARE SHOWN IN OHMS K=1000, MEG=1,000,000.
2. CAPACITANCE VALUES ARE MFD. UNLESS OTHERWISE NOTED.
3. RESISTANCE VALUES SHOWN ARE WITH PART DISCONNECTED FROM CIRCUIT.
4. VOLTAGES READ WITH ELECTRONIC VOLTMETER, FROM POINT INDICATED TO GROUND. TUNER ON UNUSED CHANNEL, CONTRAST AND BRIGHTNESS AT MINIMUM, -7.5 VOLTS BIAS ON I.F. LINE AT JUNCTION OF R23 AND R24, OTHER CONTROLS AT NORMAL, LINE VOLTAGE 117 VOLTS, ANTENNA TERMINALS SHORTED TOGETHER, BUT NOT TO GROUND.
5. ALL WAVE FORMS MEASURED WITH STRONG SIGNAL INPUT AND WITH CONTRAST SET TO GIVE NORMAL PICTURE, A.G.C. LINE OPERATING NORMALLY.
6. ALL RESISTORS 1/2 WATT UNLESS OTHERWISE NOTED.
7. 1 WATT RESISTORS IN PACS ARE 2 1/2 WATT IN SERIES.
THIS VALUE MAY VARY SLIGHTLY.
VALUES OF THESE PARTS ARE NOMINAL AND MAY VARY SLIGHTLY FROM THOSE SHOWN. REPLACE WITH EXACT DUPLICATE OF PART IN YOKE.

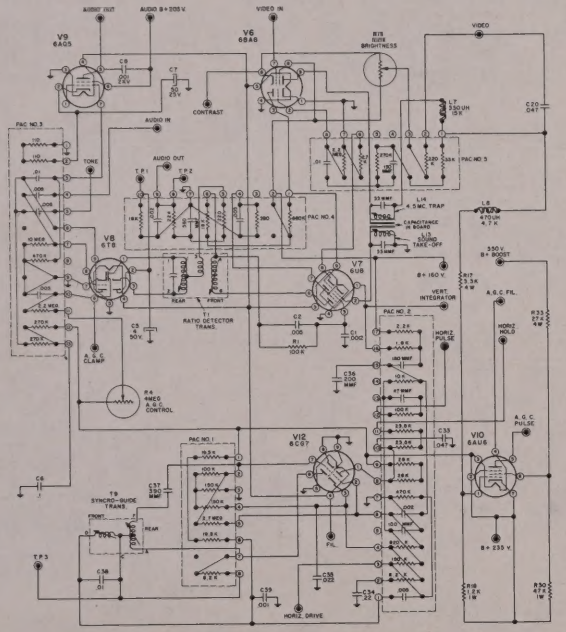
SCHEMATIC DIAGRAM COURTESY SEARS ROEBUCK AND CO.

The PHOTOFACT Servicer

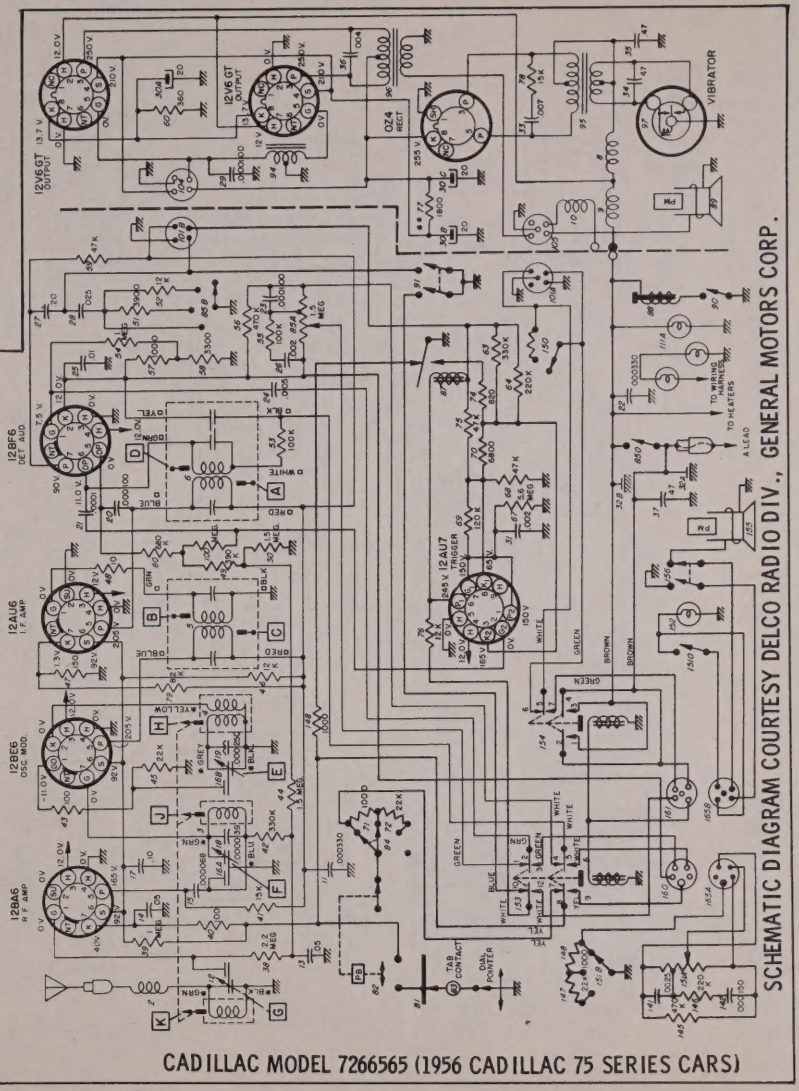
SET 396 ★ *Published for all users of Howard W. Sams' Photofact Folders* APRIL 15, 1958

The service information in this Servicer provides data on models which we have been unable to present in PHOTOFACT Folders. The receivers are not in current production; a requirement for PHOTOFACT coverage, and we are therefore presenting schematics and supplementary data that will be of assistance when servicing these models.

SILVERTONE MODELS 7132, 7134 (CHASSIS 528.52040)



Wiring Diagram of Sync-Sound Board



CADILLAC MODEL 7266565 (1956 CADILLAC 75 SERIES CARS)

PHOTOFACT* Folder

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type knobs from the front. Remove 2 wood screws holding the knob escutcheon. Remove the escutcheon and 4 remaining knobs.

2. Remove 6 wood screws from the rear cover. Remove the rear cover.

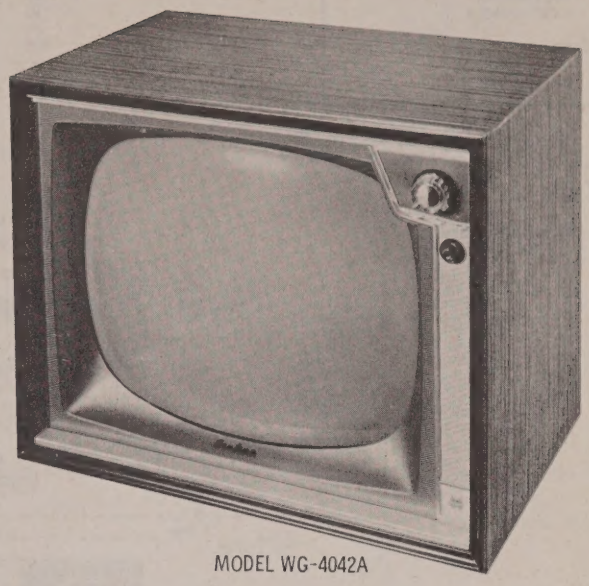
3. Loosen 2 wood screws and remove the antenna terminal board.

4. Remove 2 wood screws from the top chassis braces.

5. Remove 4 chassis bolts from the bottom.

6. Remove the speaker leads.

7. Remove the chassis.



MODEL WG-4042A

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

TRADE NAME	Airline	MODELS
		WG-4042A, WG-4052A, WG-4142A, WG-4143A, WG-4152A, WG-4153A, WG-5042A, WG-5047A, WG-5052A, WG-5142A, WG-5143A, WG-5147A, WG-5152A, WG-5153A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Avenue, Chicago, Illinois	
TYPE SET	Television Receiver	
TUBES	Fifteen	
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 150 Watts, 1.3 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)	

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 5 wood screws from the trim at the top edge of the safety glass. Tilt glass out at the top and lift up to remove.

SPECIAL ADJUSTMENTS

A. Range
Turn range control fully counter clockwise, then clockwise for best picture and MINIMUM snow without distortion or overload.

B. Focus
Adjust the beam alignment magnet on the neck of the picture tube for best focus.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate audio detector buzz, adjust the buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart).

FUSE DEVICE

A circuit breaker is used for LV power supply protection and may be reset by depressing the reset button.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

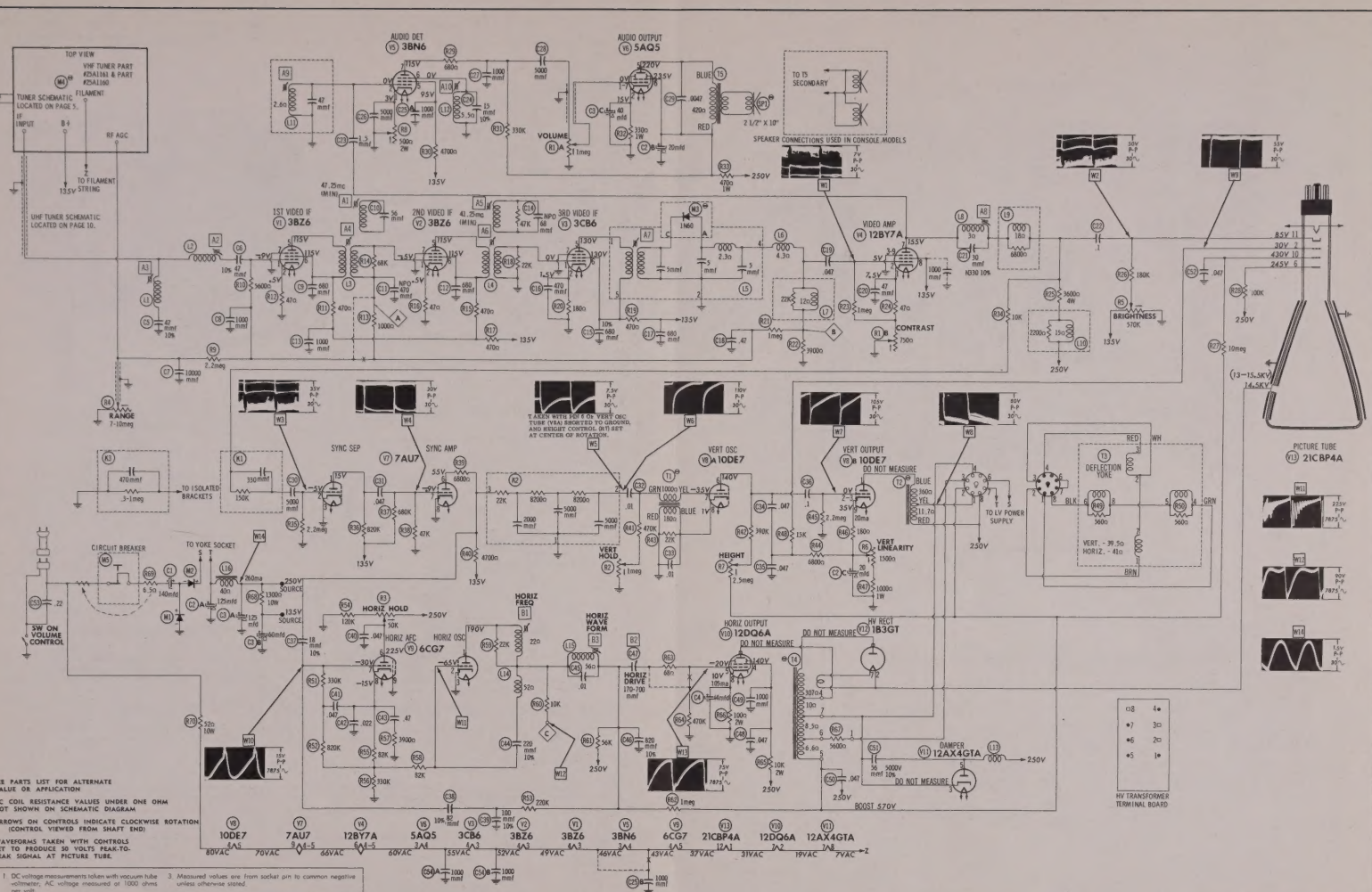
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H414

AIRLINE MODELS WG-4042A, 4052A, 4142A, 4143A, 4152A, 4153A, 5042A, 5047A, 5052A, 5142A, 5143A, 5147A, 5152A, 5153A

SET 396 FOLDER 1

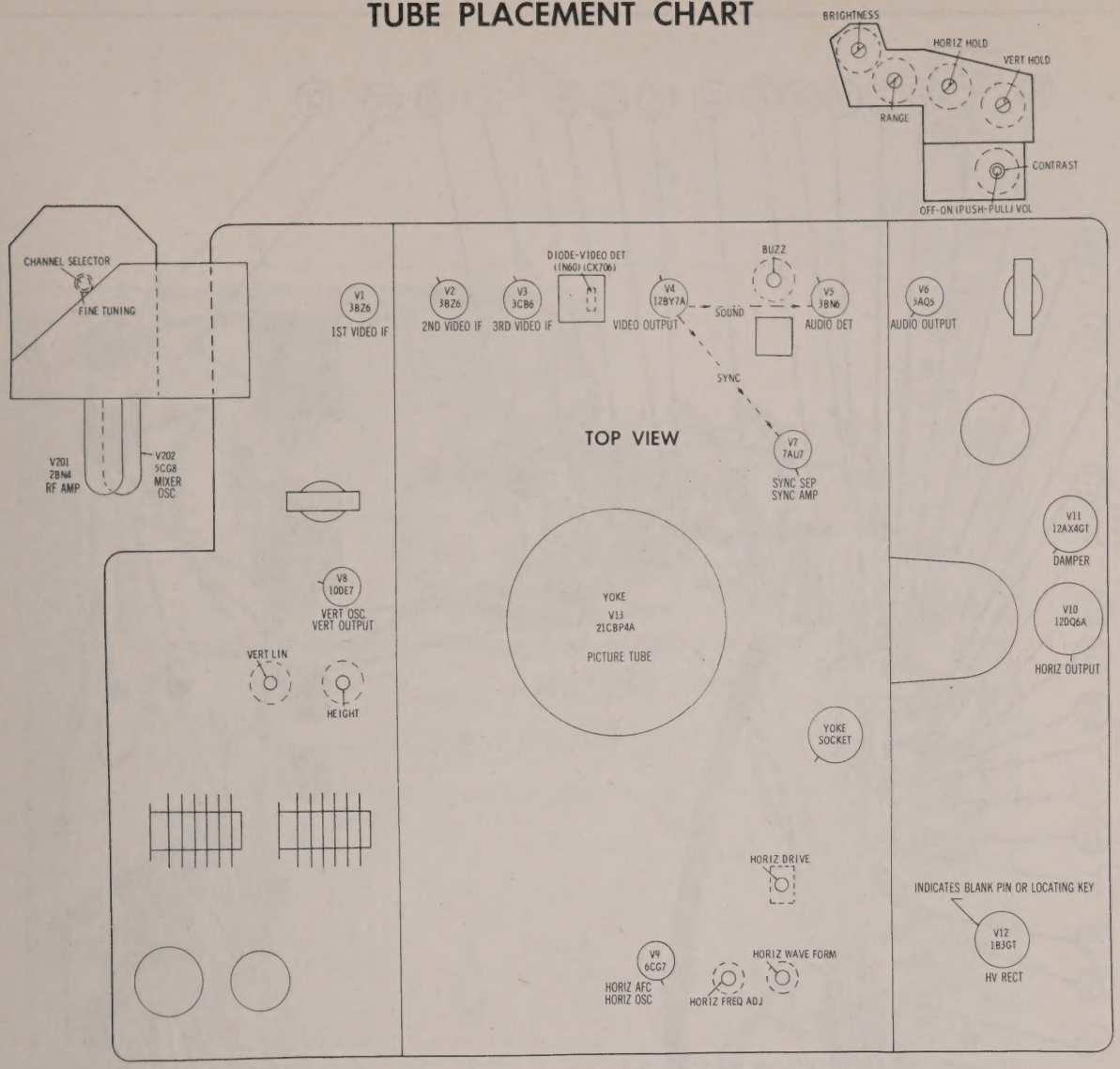

TOP VIEW
VHF TUNER PART #25A1161 & PART #25A1160
TUNER SCHEMATIC LOCATED ON PAGE 5.
IF INPUT
B+
FILAMENT
RF AGC
TO FILAMENT 135V STRING
UHF TUNER SCHEMATIC LOCATED ON PAGE 10.
AUDIO DET V5 3BN6
AUDIO OUTPUT V6 5AQ5
TO T3 SECONDARY
SPEAKER CONNECTIONS USED IN CONSOLE MODELS
VOLUME R1 A 1meg
1ST VIDEO IF V1 3BZ6
2ND VIDEO IF V2 3BZ6
3RD VIDEO IF V3 3CB6
VIDEO AMP V4 12BY7A
CONTRAST R1 B 750
BRIGHTNESS 570K
PICTURE TUBE V13 21CBP4A
DEFLECTION YOKE
TO LV POWER SUPPLY
RANGE 7-10meg
SYNC SEP V7 7AU7
SYNC AMP
TO ISOLATED BRACKETS
VERT OSC V8A 10DE7
VERT OUTPUT V8B 10DE7
DO NOT MEASURE
VERT LINEARITY R5 1500
HEIGHT R7 2.5meg
VERT HOLD R2 1meg
CIRCUIT BREAKER
TO YOKE SOCKET
SW ON VOLUME CONTROL
HORIZ HOLD R3 10K
HORIZ AFC V9 6CG7
HORIZ OSC
HORIZ FREQ B1
HORIZ WAVE FORM B3
HORIZ DRIVE 170-700 mmf
HORIZ OUTPUT V10 12DQ6A
DO NOT MEASURE
HV RECT V12 1B3GT
DAMPER V11 12AX4GTA
HV TRANSFORMER TERMINAL BOARD
BOOST 570V
TAKEN WITH PIX 6 ON VERT OSC TUBE (V8A) SHORTED TO GROUND, AND HEIGHT CONTROL (R7) SET AT CENTER OF ROTATION.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
V8 10DE7 6AQ 80VAC
V7 7AU7 6AT-5 70VAC
V4 12BY7A 6AV-5 65VAC
V9 5AQ5 6AM5 60VAC
V5 3CB6 6AJ8 55VAC
V3 3BZ6 6AJ8 52VAC
V2 3BZ6 6AJ8 49VAC
V1 3BN6 6AJ8 46VAC
V6 6CG7 6AJ8 43VAC
V13 21CBP4A 12A1 37VAC
V10 12DQ6A 6AX2 31VAC
V11 12AX4GTA 12A2 19VAC
7VAC
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

AIRLINE MODELS WG-4042A, 4052A, 4142A, 4143A, 4152A, 4153A, 5042A, 5047A, 5052A, 5142A, 5143A, 5147A, 5152A, 5153A

FOLDER 1

AIRLINE MODELS WG-4042A, 4052A, 4142A, 4143A, 4152A, 4153A, 5042A, 5047A, 5052A, 5142A, 5143A, 5147A, 5152A, 5153A

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

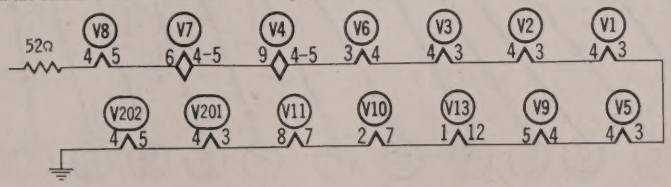
POWER SUPPLY FAILURE
No raster, no sound - **Circuit Breaker (M5), Rectifier (M1, M2)**

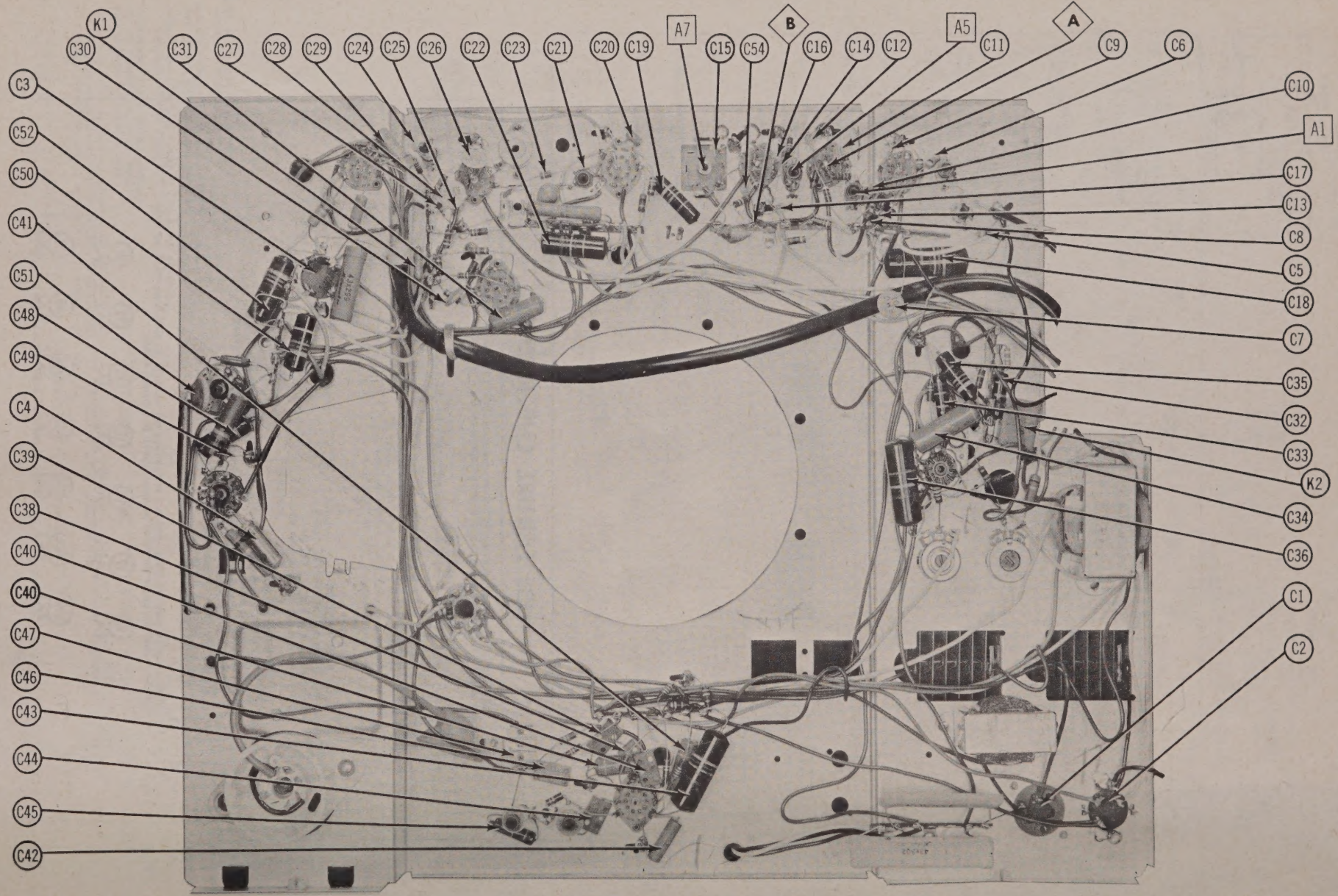
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V1, V2, V3, Diode (M3), V4**
No pic, no sound, has snow - **V201, V202, V1**
No pic, has sound, has raster - **V4, V13**
Has pic, no sound - **V5, V6**

SYNC FAILURE
No vert. sync - **V7**
No horiz. sync - **V7, V9**
No vert. or horiz. sync - **V7**

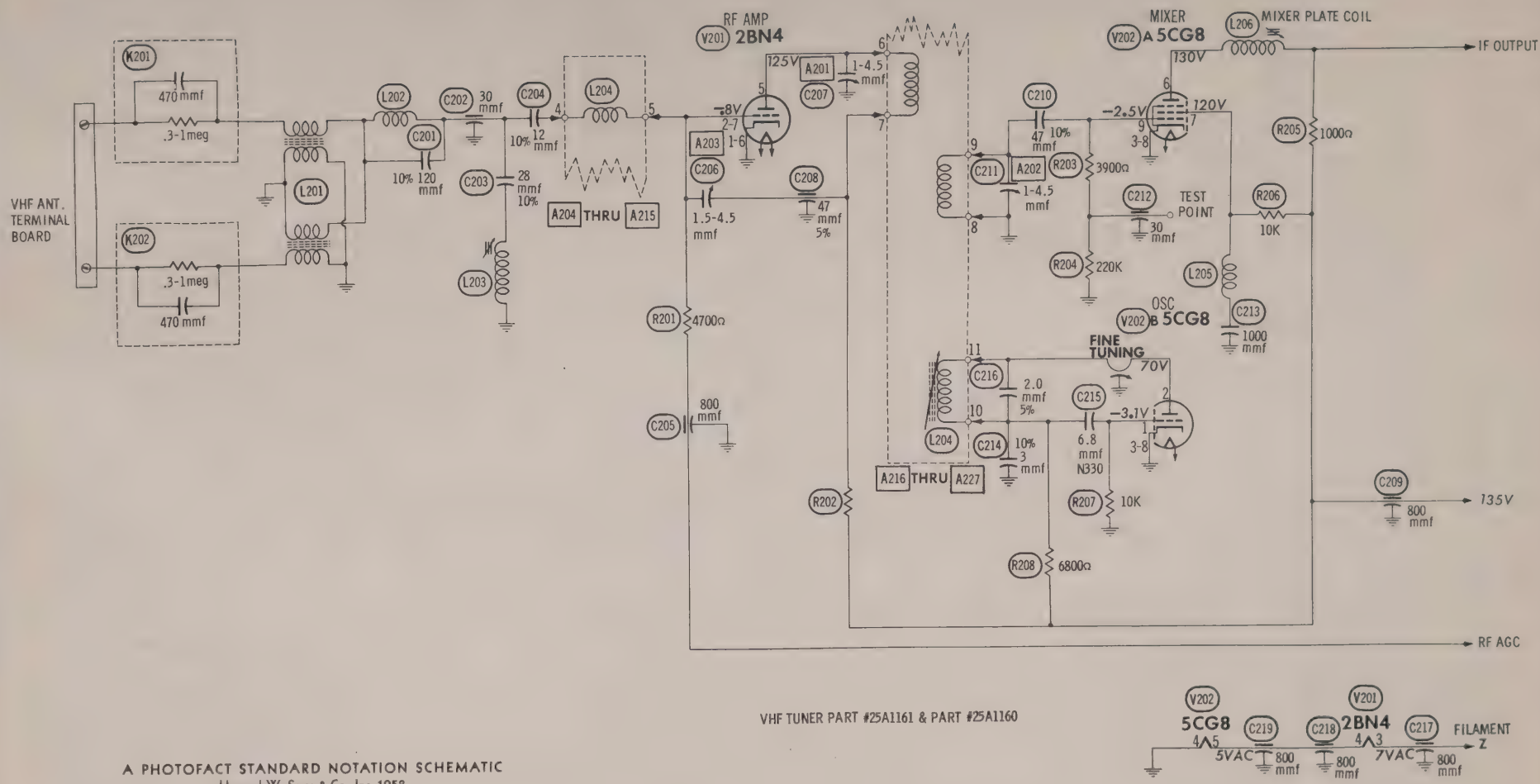
SWEEP FAILURE
No raster, has sound - **V9, V10, V11, V12, V13**
No vertical deflection - **V8**
Poor vert. linearity or foldover - **V8**
Poor horiz. linearity or foldover - **V9, V10, V11**
Narrow picture - **V9, V10, V11, M1, M2**
Vert. off freq. - **V8**
Horiz. off freq. - **V9**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).





CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



VHF TUNER PART #25A1161 & PART #25A1160

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

TUNER SCHEMATIC

AIRLINE MODELS WG-4042A, 4052A, 4142A, 4143A, 4152A, 4153A, 5042A, 5047A, 5052A, 5142A, 5143A, 5147A, 5152A, 5153A

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
Allow a 20 minute warm-up period for the receiver and test equipment.

RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point Ⓣ. Positive to chassis.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading. (Approximately 1.5 volts).
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A201, A202	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201.
2.	"	"	"	"	"	Vert. Amp. thru detector (Fig. 202). to plate of 1st. IF tube. Low side to chassis.	A203	Adjust A203 to obtain MINIMUM response on the scope.
3.	"	"	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A204	Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading. (Approximately 1.5 volts).
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across video detector load.	A216	Adjust to place sound marker in trap notch as in Fig. 203. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75 MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

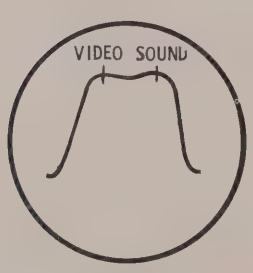


FIG.201

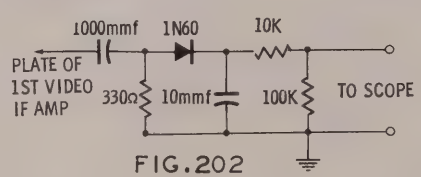


FIG.202

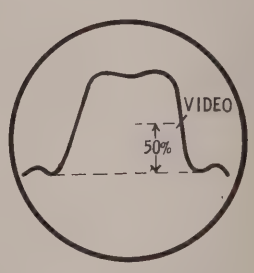


FIG.203

PRE-ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 1.5 volt bias supply to point Ⓐ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	44.5MC (10MC Swp)	47.25MC	Any non-interfering channel	Vert. Amp. thru detector (Fig.1) to pin 5 (plate) of 3BZ6 (V1). Low side to chassis.	A1	Adjust to place marker in trap notch as in Fig. 2.
2.	"	"	"	41.25MC	"	"	Mixer Plate Coil & A2, A3	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown. The mixer plate coil and A2 shape the top of response. A3 places 41.25MC marker. A3 must be adjusted accurately or sound rejection will not be correct. The 45.75MC marker must be placed exactly on peak or the 44.5MC marker will not be correct in following steps.
3.	"	"	"	42.8MC	"	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis. DC probe of VTVM to point Ⓑ. Common to chassis. (Across video det. load).	A4	Adjust sweep output for -2 volts on VTVM. Adjust A4 for maximum gain at marker.
4.	"	"	"	41.25MC	"	"	A5	Adjust for MINIMUM gain at marker.
5.	"	"	"	45.3MC	"	"	A6	Adjust for maximum gain at marker.
6.	"	"	"	44.0MC	"	"	A7	"
7.	"	"	"	41.25MC 42.4MC 42.8MC 44.0MC 44.3MC 44.5MC 45.75MC 47.25MC	"	"		Check for response similar to Fig. 3 with markers as shown. The 44.5MC is critical so if necessary, retouch A7 to place 44.5MC marker at 98%. If necessary, retouch A6 for correct position of 45.75MC marker and A4 to position 42.8MC marker. (A4 seldom needs retouching). DO NOT retouch mixer plate coil or A2.

4.5MC TRAP ALIGNMENT

Use 0-10 volt AC scale on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.001mfd	High side to point Ⓑ. Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	AC probe to pin 11 (cathode) of picture tube. Common to chassis.	A8	Adjust for MINIMUM deflection. This adjustment can be made while observing a picture from a station. Adjust for MINIMUM beat (grain) interference in picture.

SOUND IF ALIGNMENT

Tune in a TV station and reduce the signal strength by use of an attenuator or similar device until a hiss similar to super regenerator is heard in the sound.
Adjust A9, A10 and the buzz control (R8) for maximum undistorted sound with MINIMUM buzz.
If the hiss disappears during alignment, further reduce the signal strength until the hiss returns.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 6.

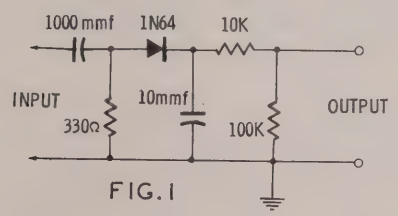


FIG. 1

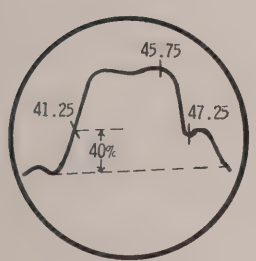


FIG. 2

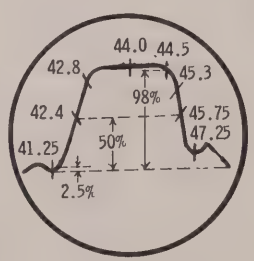


FIG. 3

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp	3DZ6	
V2	2nd Video IF Amp	3DZ6	
V3	3rd Video IF Amp	3CB6	
V4	Video Output	12BY7A	
V5	Audio Det	3BN6	
V6	Audio Output	5AQ5	
V7	Sync Sep -Sync Amp	7AU7	
V8	Vert Osc -Vert Output	10DE7	
V9	Horiz. AFC-Horiz. Osc.	6CG7	
V10	Horiz. Output	14DQ8A	
V11	Damper	12AX4GTA	
V12	HV Rectifier	1B3GT	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	AIRLINE PART No	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No	
V13	21CUP24		21CBP4-A ①	21CBP4 ② 21CBP4A ③	① "Universama" ② "Silver screen 85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						
	CAP	VOLT	AIRLINE PART No	AEROVOX PART No.	CORNELL DUBILIER PART No	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No
C1	140	150	45X421	AFHSI-23	XA026U	FP317	TMS-24	T-055	TVL-1428
C1A	±125	300	45X431	AFH4-22-60	XCU753. 2	FP318 T-C36		CU-017 MT-0525	*R2375
B	±20	300							
C	+20 -10	50							
C3A	±125	300	45X420	AFH3-39-52	CU733. T	FP420.76 T-C65		T-115 MT-0550	TVL-3574. 6
B	±60	300							
C	+40 -10	50							
C4	4	50	45X418	PRS150V4	BBR4-50	TC30	ML5-50	MT-0504	TE-1303

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							
	CAP	VOLT	AIRLINE PART No	AEROVOX PART No.	CENTRALAB PART No	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No	SPRAGUE PART No	NOTES
C5	47			NPO-DI 47	D6-470	L10Q47	ED-47		MS-447	10%
C6	47			NPO-DI 47	D6-470	L10Q47	ED-47		MS-447	10%
C7	10000			BPD-01	DD-103	BYA501	ED-01	DC51	5HK-S1	
C9	1000			BPD-001	DD-102	BYA5DI	ED-1000	DC51	5HK-DI	
C10	680			BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C11	56			BPD-DI 56	TC2-56	L10Q56	ED-56			NPO
C12	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C13	680			BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C15	1000			BPD-001	DD-102	BYA5DI	ED-1000	DC51	5HK-DI	
C14	56			NPO-DI 56	TC2-56	C10Q56C	TC0-56		STCC-Q56	NPO
C16	680				DD-681	1RS7T68	ED-680	UC-5368	5HK-S68	10%
C18	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C17	680			BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C19	.47	400		P288N-47		DF-503	CUB4P47		GEM-4047	TTM-P47
C19	.047	200		P288N-047		DF-503	CUB2S47		GEM-4147	2TM-S47
C20	47			31-47		D6-470	GP-47	UC-5447	5GA-Q47	
C21	30									N330 10%
C22	.1	400		P488N-1		DF-104	CUB4P1		GEM-401	4TM-P1
C23	1.8			XPO-DI 1.5		TC2-1R5	CAV15C	TCO-1.5		5HK-CTCB-V15
C24	15			BPD-DI 15		DD-150	L10Q15	ED-15		MS-415 10%
C25A	1000			BPD-32D01		DD8-102	BYC5DDI	ED8-001	DCD521	5HK-3DI
B	1000									
C26	5000			BPD-005		DD-502	BYA10D5	ED-005	DC525	5HK-D5
C27	1000			BPD-001		DD-102	BYA5DI	ED-001	DC521	5HK-DI
C28	5000			BPD-005		DD-502	BYA10D5	ED-005	DC525	5HK-D5
C29	.0047	600		P488N-0047		DF-472	CUB6D47	GP-4700	GEM-4247	6TM-D47
C30	5000			BPD-005		DD-502	BYA10D5	ED-005	DC525	5HK-D5
C31	.047	400		P488N-047		DF-503	CUB4S47		GEM-4147	4TM-S47
C32	.01	600		P488N-01		DF-103	CUB6S1	GP-10000	GEM-411	6TM-S1
C33	.01	600		P488N-01		D6-103	CUB6S1	GP-10000	GEM-411	6TM-S1
C34	.047	400		P488N-047		DF-503	CUB4S47		GEM-4147	4TM-S47
C35	.047	200		P288N-047		DF-503	CUB2S47		GEM-4147	2TM-S47
C36	.1	400		P488N-1		DF-104	CUB4P1		GEM-401	4TM-P1
C37	18		RCM20B18K	1469-00018		D6-180	22RS4S18	ED-18		MS-418 10%
C38	82		RCM20B82K	1469-00082		D6-820	22RS4S82	ED-82		MS-482 10%
C39	100			1469-0001		D6-101	22RS7T1	ED-100	MCB33S	MS-S1 10%
C40	.047	400		P488N-047		DF-503	CUB4S47		GEM-4147	4TM-S47
C41	.047	200		P288N-047		DF-503	CUB2S47		GEM-4147	2TM-S47
C42	.047	200		P288N-022		DD-203	CUB4S22	ED-22	GEM-4122	2TM-S22
C43	.47	200		P288N-47			CUB2P47		GEM-4047	2TM-P47
C44	220			1469-00022		D6-221	22RS7T22	ED-220		MS-S22 10%
C45	.01	600		P488N-01		D6-103	CUB6S1	GP-10000	GEM-411	6TM-S1
C46	820		RCM20B82K	1469-00082			1RS7S2	ED-820		MS-S82 10%
C47	170									
	700			17A271						
C48	.047	600		P488N-047		DF-503	CUB6S47		GEM-4147	6TM-S47
C49	1000			BPD-001		DD-102	BYA5DI	ED-1000	DC521	5HK-DI
C50	.047	400		P488N-047		DF-503	CUB4S47		GEM-4147	4TM-S47
C51	56	5000	47X756							10%
C52	.047	800		P488N-047		DF-503	CUB6S47		GEM-5147	6TM-S47
C53	.22	400		P488N-22			CUB4P22		GEM-4022	4TM-P22
C54A	1000			BPD-32D01		DD8-102	BYC5DDI	ED8-001	DCD-521	5HK-3DI
B	1000									

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA						INSTALLATION NOTES
	RESIST-ANCE	WATTS	AIRLINE PART No	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No		
R1A	750Ω	½	78X21				U2128S		Contrast
B	Imeg						Not Req.		Volume
C	Switch						Not Req.		
R2A	1meg	½	40X436	AB-49	A47-1meg-8	Q1-127	U54		Vert. Hold
B	Shaft			AK-8 *	RS-3/16 †	NQ	D8-37 *		
R3A	50K	½	40X427	AB-31	A47-50K-8	Q1-123	U58		Horiz. Hold
B	Shaft			AK-8 *	RS-3/8 *	NQ	D8-37 *		
R4A	7-10meg	½	40X429				U58 †		Range
B	Shaft						Not Req.		
R5A	250K	½	40X426	AB-59	A47-500K-8	Q1-133	U80		Brightness
B	Shaft			AK-8 *	RS-3/16 *	NQ	D8-37 *		
R6A	1500Ω	½	40X390	AB-8	A47-1500-8	Q1-109	PTA1521.		Vert. Lin.
B	Shaft			AK-19	RN-3	TQ	Not Req.		
R7A	2.5meg	½	40X396	BX-83	A47-2.5meg -8	Q1-139	TA165L		Height
B	Shaft			Not Req.	FSR-1/4	TQ	Not Req.		
R8	500Ω	3(WW)	40X397		39-500		FL-500		Buss

* File flat as needed to fit knob.
† Do not solder any wires to left hand terminal.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING		AIRLINE PART No	NOTES
	OHMS	WATT		
R9	2.2meg			
R10	560Ω			
R11	470Ω			
R12	47Ω			
R13	100Ω			
R14	68K			
R15	470Ω			
R16	47Ω			
R17	470Ω			
R18	22K			
R19	470Ω			
R20	180Ω			
R21	1meg			
R22	390Ω			
R23	1meg			
R24	47Ω			
R25	360Ω	4	43X331	
R26	180K			
R27	10meg			
R28	100K			
R29	680Ω			
R30	4700Ω			
R31	330K			
R32	330Ω	1		
R33	470Ω	1		
R34	10K			
R35	2.2meg			
R36	820K			
R37	680K			
R38	47K			
R39	6800Ω			

ITEM No	RATING		AIRLINE PART No	NOTES
	OHMS	WATT		
R40	4700Ω			
R41	470K			
R42	390K			
R43	22K		B84223	
R44	6800Ω			
R45	2.2meg			
R46	180Ω		B8418I	
R47	100Ω	1		
R48	15K			
R49	560Ω			
R50	560Ω			
R51	330K			
R52	820K			
R53	220K			
R54	120K			
R55	83K			
R56	330K			
R57	3900Ω			
R58	82K			
R59	22K			
R60	10K			
R61	58K			
R62	1meg			
R63	68Ω			
R64	470K			
R65	10K	2		
R66	100Ω	2		
R67	6800Ω			
R68	1300Ω	10	43X399	
R69	6.5Ω		43X303	
R70	52Ω	10		

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		AIRLINE PART No	Halldorson PART No	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	
T1	Vert Osc	54X19-A	B6702	A-3003	V405	A-8125	28A03	A-97X	
	Alt. Vert Osc.	54X19							
T2	Vert Output	51X186B	Z1900 ① ②	A-3038 ①	V307 ① ②	VO-100 ①	28S73 ③	A-118X ②	
	Alt. Vert. Output	51X186							
T3A	Yoke-Horiz (24 5MH)	9A-2403 ④	DF607 ⑤ ⑥	MDF-92 ⑤ ⑥	Y90F10/43 ⑤ ⑥	DY-18A ⑤ ⑥	Y-16 ⑤ ⑥	Y-45 & NW21 ⑤	
B	(90°)-Vert. (24MH)								
M6	Rear Cover & Centering Device	2A435						YCL	
	Yoke Clamp	30X611						CLJ	
	Rubber Strip	8X247							
T4	Horiz Output	53X362C	FB418 ⑦ ⑧	HVO-36 ⑦ ⑧	X094 ⑦ ⑧	HO-283*	FLY-16 ⑦ ⑧	D-121 *	
	Alt Horiz Output	53X364	FB419 ⑦ ⑧	HVO-38 ⑦ ⑧	X094 ⑦ ⑧	HO-283*	FLY-16 ⑦ ⑧	D-121 *	

1 Connect as autotformer
2 Use 9 to 1 turns ratio.
3 Drill new mounting hole(s).
4 Includes resistors (R49, R50).
5 Use original rear cover, centering device and horizontal damping network.
6 Connect same as original.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordorson Replacement Connections	Triad Replacement Connections
4	9	9	9	9	9	4
7	7	7	7	3	7	3
8	See Note ⑦ NC	See Note ⑦ NC	See Note ⑦ NC	4	See Note ⑦ NC	2
5	1	1	1	1	1	1
Special Notes →	⑦	⑦	⑦		⑦	

⑦ Install new damping network consisting of approximately 50mmf in series with resistor (R67) across horizontal yoke terminals #3 and #7.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	
T5	6100Ω	3-4Ω	51X385	22J10	A-3026	AU-503 ①	A-3877 ①	24S81 ①	S-6X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE				REPLACEMENT DATA		NOTES
	SIZE	FIELD	V C IMP.		AIRLINE PART No.	QUAM PART No.	
SP1	21"x10" S*	PM PM	3-4Ω		12A549 ① 14A550 ②		① Used in table models ② Used in console models

COILS (RF-IF)

ITEM No	USE	REPLACEMENT DATA					NOTES
		AIRLINE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	39MC Trap	9A2388			4202		
L2	1st. Video IF	9A2385		17-4534	TV-131	4203	VF-4
L3	2nd. Video IF	9A2363		17-4536		6223	Includes 47.25MC Trap
L4	3rd. Video IF	9A2414		17-4535		6231	Includes 41.25MC Trap
L5	4th. Video IF	9A2370		17-4514			Includes Assy.
L6	Resonant Choke	9A2375					30 Microvolries
L7	Shunt Peaking Coil	36A12		19-4160 *	TV-134 *	6120 *	160 Microvolries, wound on 22K resistor

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		AIRLINE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L8	4.5MC Trap	9A2386		20-1004	TV-151	1469 ▲	SF-3
L9	Series Peaking Coil	36A48		19-4400 ▲	6132 ▲	VP-7 ▲	VP-7 ▲ 250 Microhenries, wound on 6800Ω resistor
L10	Shunt Peaking Coil	36A33		19-4280 †	TV-155 †	6161 †	VP-6 † 235 Microhenries, wound on 2400Ω resistor
L11	Sound IF	9A2400		17-4026	TV-154	1470A ▲	
L12	Quadrature Coil	9A2367		20-1005	TV-121	1480	
L13	RF Choke	9A2380		19-1001	BC-562	4004	1.5 Microhenries

* Parallel with 22K resistor.
▲ Disregard tap
▪ Drill mounting holes.
+ Parallel with 6800Ω resistor.
† Parallel with 2200Ω resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES		REPLACEMENT DATA						NOTES
	PRI	SEC	AIRLINE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordorson PART No	
L14	765 *		9A2371			TV-186	6311 ▲	8S-7	Horiz. Freq.
L15	56Ω		9A2372				6315	8S-8 ▲	Horiz. Waveform

* Tapped @ 54Ω

▲ Enlarge mounting hole.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT 1000 ~(1)	AIRLINE PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordorson PART No	Triad PART No
L16	.260A	40Ω	1 Hy.	53X95-6	C6037 ①	C-2998 ①		C-3328 ①	28C63 ①	C-87X

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	AIRLINE PART No	REPLACEMENT DATA	
K1	Sync Coupling	330mmf, 150K	76X13		
K2	Vert. Integrator	2000mmf, 5000mmf, 8000mmf, 22K, 6300Ω, 8300Ω	76A7	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA-110 PC-104 1187M1 1406-01 V-1
K3	Chassis Isolation	470mmf, .3-1meg	76X11	Centralab Sprague	RC-471 R-R177

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	AIRLINE PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.260A	66X14 ①	1090A ②	1N607 ②	RS3008L ① SD94A ②	300 ① M300 ②	① Selenium type. ② Germanium type. ③ Silicon type.
M2	.385A	66X24 ③	1090A ②	1N607 ②	RS3008L ① SD94A ③	300 ① M300 ②	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		AIRLINE PART No.	CBS PART No.	SYLVANIA PART No.	
M3	1N60 *		1N60	1N60	Video Detector (Pigtail)

* Some versions may use CK706 in this application

MISCELLANEOUS

ITEM No	PART NAME	AIRLINE PART No.	NOTES
M4	Tuner	25A1161	VHF (Standard Coil #NAS-4139)
	Tuner	25A1160	VHF (Standard Coil #NAS-4145)
	Tuner	25A1159	UHF (Standard Coil #NEUFS-102)
M5	Circuit Breaker	2A475	Thermal cutout
M6	Centering Device	2A435	Includes yoke cover
	Magnet	2A476	Beam alignment used with some picture tubes

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

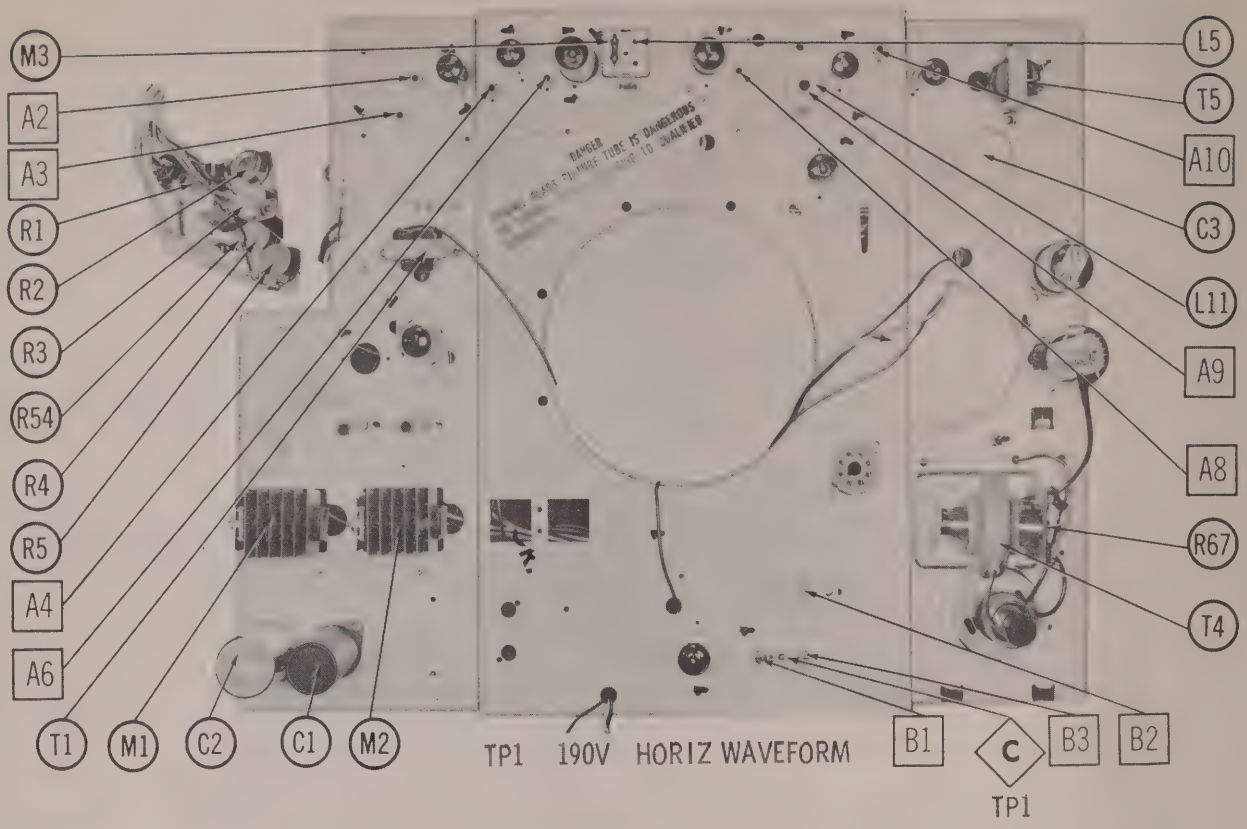
NAME	PART NO.	DESCRIPTION
Safety Glass	17X194-1	
Knob	10A898-1	Channel Selector
Knob	10A893-2	UHF Tuning
Knob	10A894-2	UHF Indicator
Knob	10A895-1	Fine Tuning
Knob	10A896-1	Contrast
Knob	10A897-1	On-off-volume
Knob	10A891-1	Brightness, range, horiz. hold, vert. hold

WIRING DATA

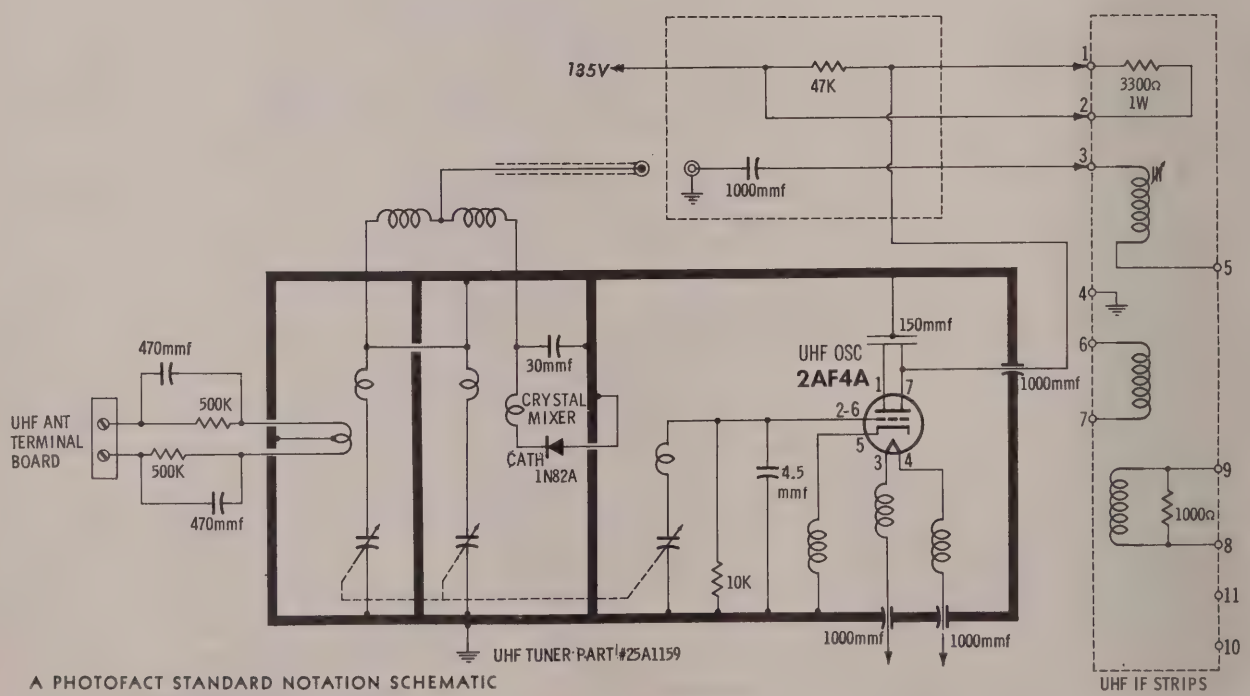
High Voltage Lead	Use BELDEN No. [illegible]
Shielded Hook-up Wire	Use BELDEN No. 8895 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. [illegible]
300Ω Tuner Input Lead	Use BELDEN No. [illegible]
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) – 4 Conductor 8465 (Round) – 5 Conductor 8468 (Round) – 8 Conductor

AIRLINE MODELS WG-4042A, 4042A, 4042A, 4143A, 4152A, 4153A, 5042A, 5047A, 5052A, 5142A, 5143A, 5147A, 5152A, 5153A

FOLDER 1

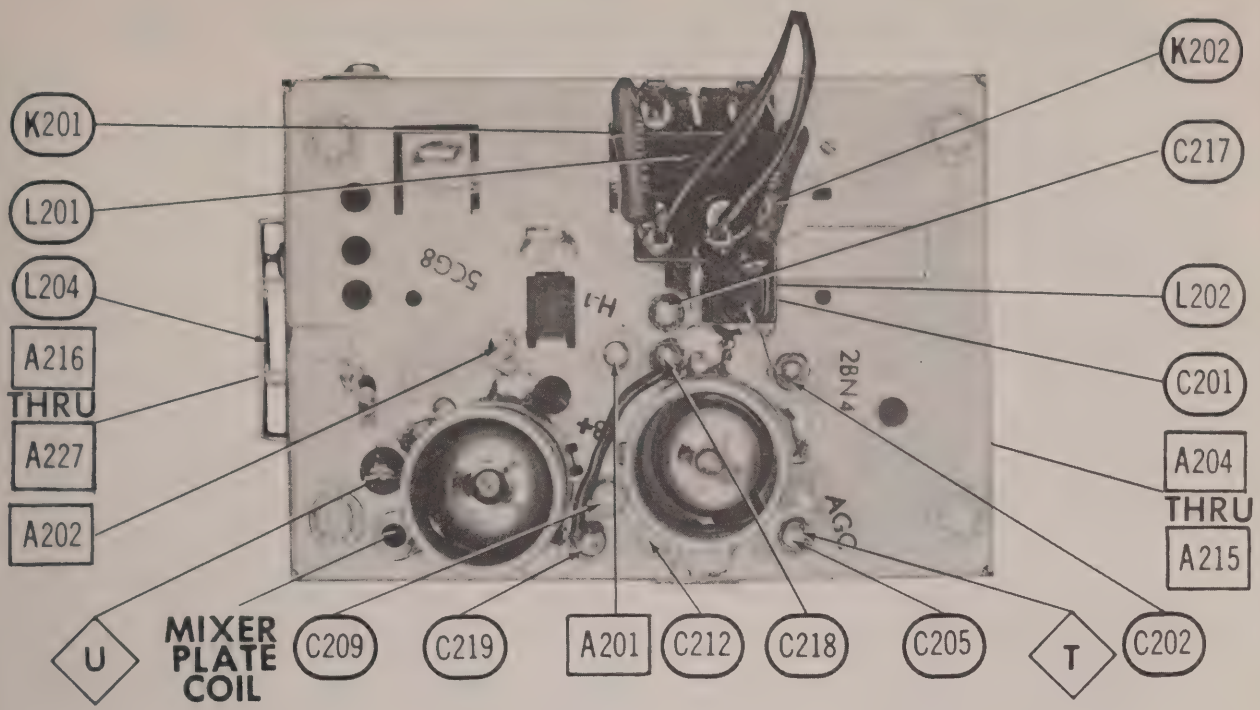


CHASSIS TOP VIEW

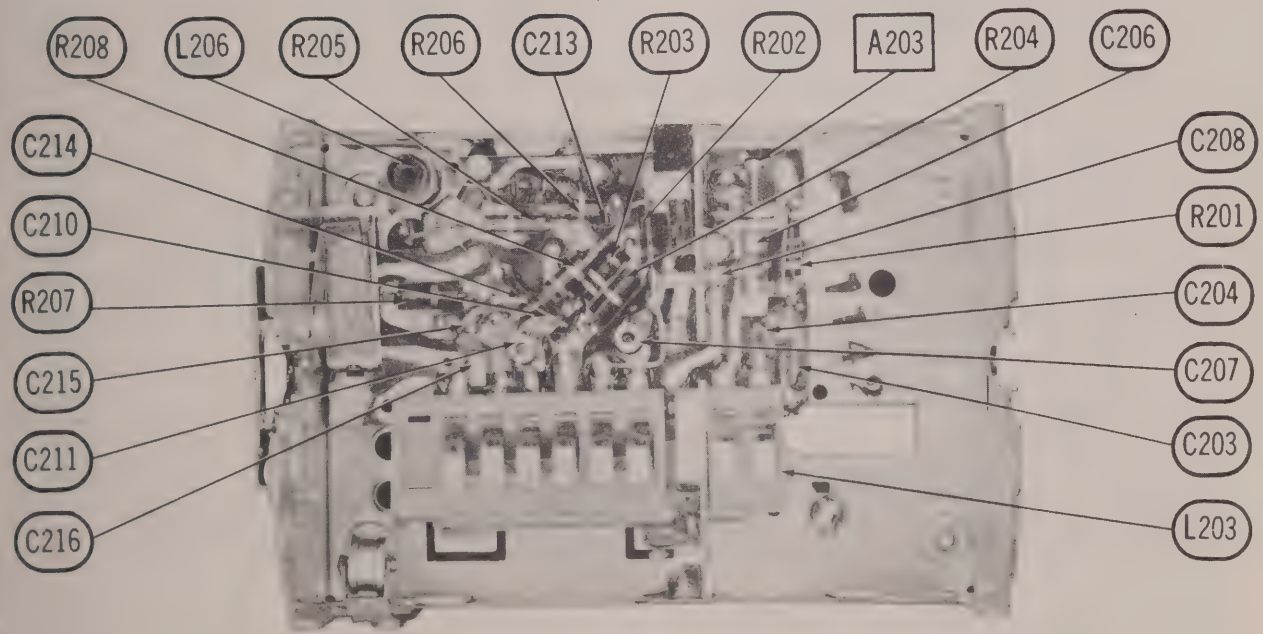


A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ALTERNATE UHF TUNER SCHEMATIC



RF TUNER-TOP VIEW



RF TUNER-BOTTOM VIEW

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amplifier	2BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	5CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120			NPO-DI 120	TCZ-120	C10T12C	TCO-120		5TCC-T12	10%
C202	30		13M320EA300J-05							
C203	28		13R-005							10%
C204	12		13R-003							10%
C205	800		13M320EA801Z-04							
C206	1.5-4.5				829-6		532-B			
C207	1-4.5		31B-902-07		829-6		532-B			
C208	47		13M130U470J							5%
C209	800		13M320EA801Z-04							
C210	47									10%
C211	1.4.5		31B-902-07		829-6		532-B			
C212	30		13M320EA300M-06							
C213	1000		13R-024							
C214	3		13R-011							10%
C215	6.8		13R-014							N330
C216	2.0		13R-009							5%
C217	800		13M320EA801Z-04							
C218	800		13M320EA801Z-04							
C219	800		13M320EA801Z-04							

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		AIRLINE PART No.	NOTES
	OHMS	WATT		
R201	4700Ω			
R202	1000Ω			
R203	3900Ω			
R204	220K			

ITEM No.	RATING		AIRLINE PART No.	NOTES
	OHMS	WATT		
R205	1000Ω			
R206	10K			
R207	10K			
R208	6800Ω			

COILS (RF-IF)

ITEM No.	USE	AIRLINE PART No.	NOTES
L201	Ant. Trans.	31T-2107-01	
L202	IF Trap Coil	34A-748	
L203	IF Trap Coil	31TA-2109	
L204A	Ant., RF, Mixer Grid, Osc. Coils	31M-300-2N4A	Channel 2
B	"	31M-300-3N4A	Channel 3
C	"	31M-300-4N4A	Channel 4
D	"	31M-300-5N4A	Channel 5
E	"	31M-300-6N4A	Channel 6
F	"	31M-300-7N4A	Channel 7
G	"	31M-300-8N4A	Channel 8

ITEM No.	USE	AIRLINE PART No.	NOTES
L204H	Ant.,RF, Mixer Grid, Osc. Coils	31M-300-9N4A	Channel 9
I	"	31M-300-10N4A	Channel 10
J	"	31M-300-11N4A	Channel 11
K	"	31M-300-12N4A	Channel 12
L	"	31M-300-13N4A	Channel 13
L205	RF Choke	25A-176-01	
L206	Mixer Plate Coil	31U-530-01	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AIRLINE PART No.	REPLACEMENT DATA	
K201	Antenna Isolation	470mmf, .3-1meg	13P-198	Centralab Sprague	RC-471 R-9177
K202	Antenna Isolation	470mmf, .3-1meg	13P-198	Centralab Sprague	RC-471 R-9177

MISCELLANEOUS

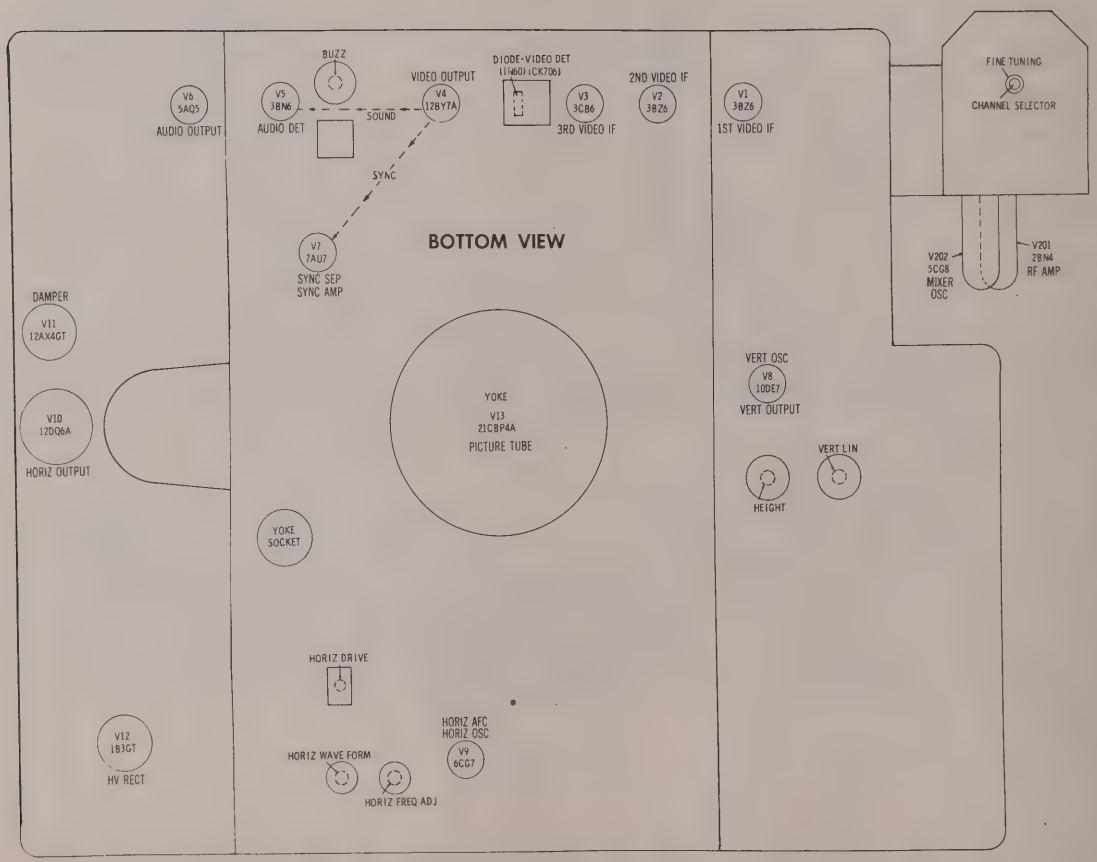
ITEM No.	PART NAME	AIRLINE PART No.	NOTES
	Drum Osc. Slug	31T-2073-171-02 15A-266	Less strips 12 required

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

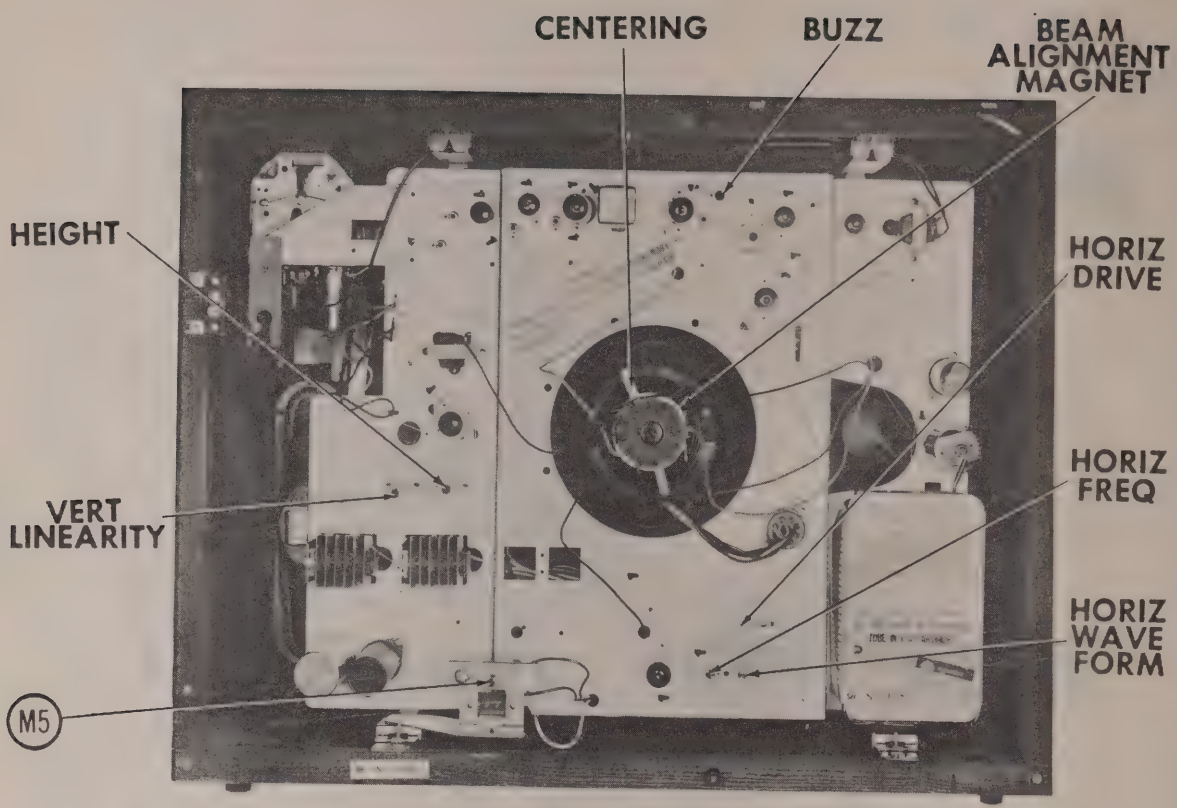
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BZ6	1meg	47Ω	10Ω	10.5Ω	†2200Ω	†2200Ω	0Ω		
V2	3BZ6	1meg	47Ω	10.5Ω	11.5Ω	†2200Ω	†2200Ω	0Ω		
V3	3CB6	.1Ω	180Ω	11.5Ω	12Ω	†1700Ω	†1700Ω	0Ω		
V4	12BY7A	•190Ω	1meg	0Ω	13Ω	13Ω	14Ω	†3600Ω	†1200Ω	0Ω
V5	3BN6	•280Ω	2.6Ω	10Ω	9.5Ω	†5900Ω	5.5Ω	†330K		
V6	5AQ5	0Ω	330Ω	13Ω	12Ω	†890Ω	†470Ω	0Ω		
V7	7AU7	†820K	2.2meg	0Ω	14Ω	14Ω	†13K	45K	0Ω	15Ω
V8	10DE7	†370Ω	2.2meg	2.2meg	16Ω	15Ω	•‡1.9meg	• 750K	160Ω	• 1400Ω
V9	6CG7	†56K	410K	0Ω	9.5Ω	8.5Ω	•† 13K	1.5meg	410K	0Ω
V10	12DQ6A	TP	4Ω	NC	†10K	470K	NC	7Ω	100Ω	TOP CAP ‡10Ω
V11	12AX4GTA	NC	NC	¶	NC	†.1Ω	NC	4Ω	1.5Ω	
V12	1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡317Ω
V13	21CBP4A	7Ω	22K	PIN 6 †100K	PIN 10 ‡10meg	PIN 11 •260K	PIN 12 8.5Ω			
V201	2BN4	0Ω	1meg	1.5Ω	1Ω	†2300Ω	0Ω	1meg		·
V202	5CG8	10K	†8100Ω	0Ω	0Ω	1Ω	†2300Ω	†11K	0Ω	220K

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 250V SOURCE.
‡ MEASURED FROM PIN 3 OF V11.
NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the horizontal hold control fully clockwise. Tune in a station and adjust the horizontal frequency slug (B1) until the picture is just about to tear out of sync as can be seen at the top of the picture.

Turn the contrast control fully counter clockwise and the brightness control clockwise so that the picture appears washed out. Turn the horizontal drive trimmer (B2) clockwise until white vertical bars (drive lines) appear in the left center portion of the raster, then counter clockwise until the white bars just disappear.

Connect the vertical amplifier of the scope to point Ⓒ . Low side to chassis. Adjust the horizontal waveform slug (B3) until the round and sharp peaks of the waveform are equal in amplitude. (See Fig. 4). Keep the picture in sync during this adjustment.

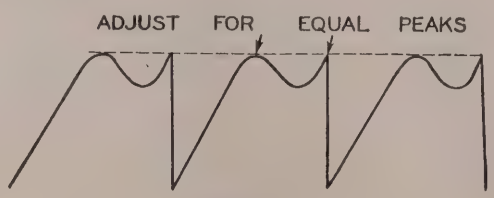


FIG. 4

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

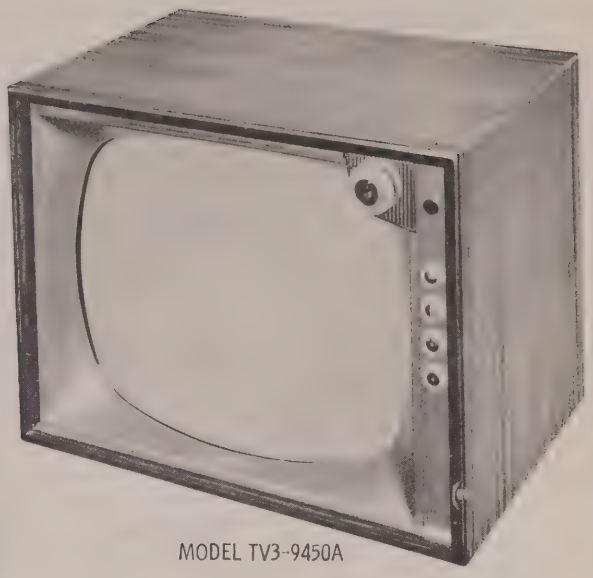
CORONADO MODELS TV3-9450A, 9455A, 9456A, 9460A, B, 9461A, B

CORONADO MODELS TV3-9450A, 9455A, 9456A, 9460A, B, 9461A, B

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type knobs from the front.
2. Remove 10 wood screws from the rear cover. Remove the rear cover.
3. Remove 2 wood screws holding the AC interlock.
4. Remove 3 wood screws from the control panel.
5. Remove the speaker leads, picture tube socket, yoke plugs and HV lead.
6. Remove 2 wood screws from the top chassis braces.
7. Remove 2 wood screws from the bottom chassis braces.
8. Remove the chassis.



MODEL TV3-9450A

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

CORONADO MODELS TV3-9450A, 9455A, 9456A, 9460A, B, 9461A, B

TRADE NAME	Coronado MODELS TV3-9450A, TV3-9455A, TV3-9456A, TV3-9460A, B, TV3-9461A, B
SUPPLIER	Gamble-Skogmo, Inc., 15 North 8th. Street, Minneapolis, Minn.
TYPE SET	Television Receiver
TUBES	Thirteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 115 Watts, 1.1 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the rear cover. Supply power to the receiver. Set the fine tuning at the center of its range. The adjustments are accessible, one at a time, through a hole in the right side of the tuner rear cover as viewed from the rear. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 4 wood screws from the strip at the top of the safety glass. Tilt out at the top and lift up to remove.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 10 or 6 and 2.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

FUSE DEVICE

A 4.7Ω fusible resistor (R61) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

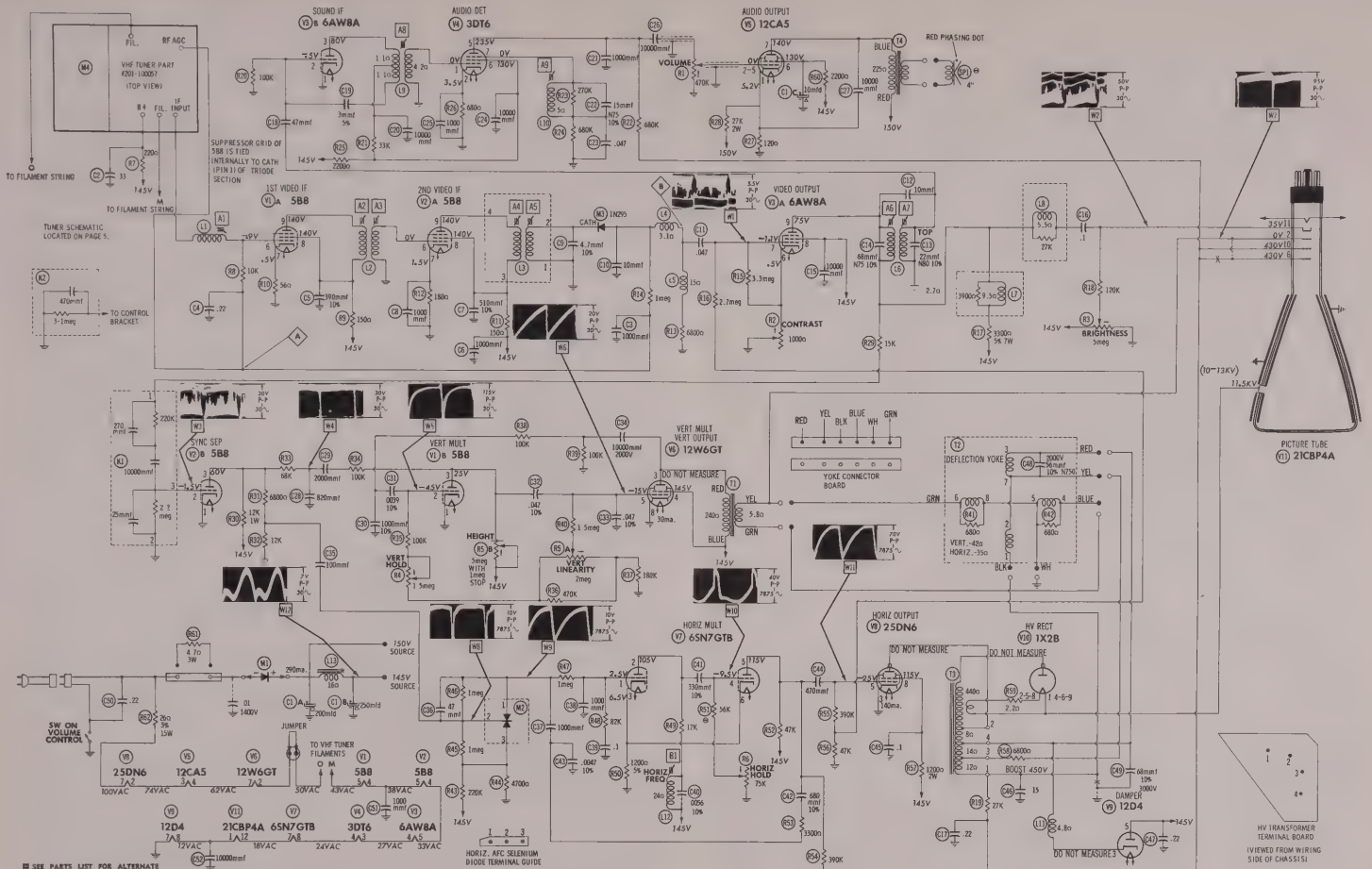
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

SET 396 FOLDER 2

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H437

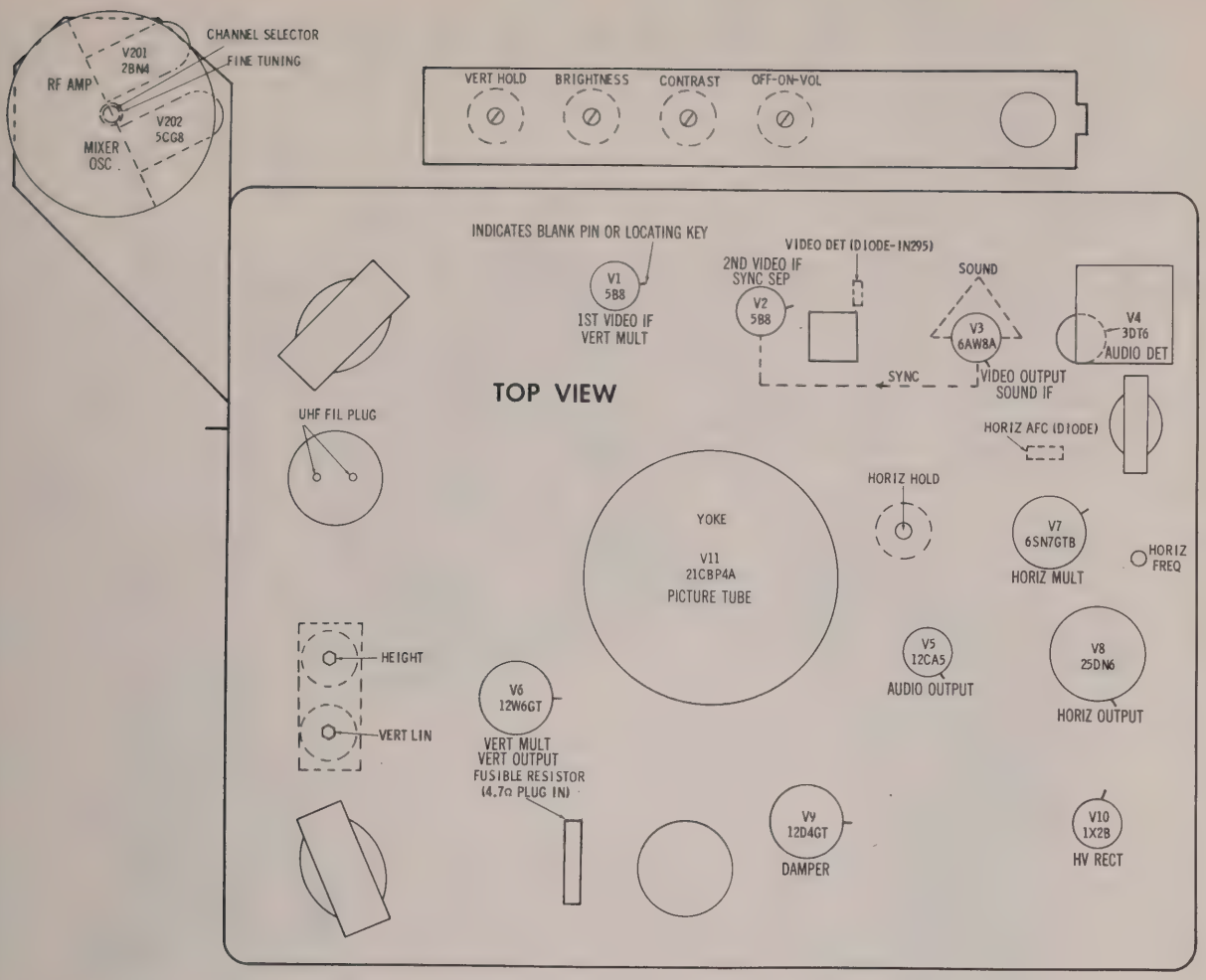

SOUND IF V3 B 6AW8A
AUDIO DET V4 3DT6
AUDIO OUTPUT V5 12CA5
VOLUME
RED PHASING DOT
VHF TUNER PART #201-10005 (TOP VIEW)
AGC
FIL.
IF INPUT
TO FILAMENT STRING
SUPPRESSOR GRID OF 5B8 IS TIED INTERNALLY TO CATH (PIN 1) OF TRIODE SECTION
TUNER SCHEMATIC LOCATED ON PAGE 5.
1ST VIDEO IF V1 A 5B8
2ND VIDEO IF V2 A 5B8
VIDEO OUTPUT V3 A 6AW8A
CONTRAST
BRIGHTNESS
TO CONTROL BRACKET
SYNC SEP V2 B 5B8
VERT MULT V1 B 5B8
VERT MULT VERT OUTPUT V6 12W6GT
DO NOT MEASURE
YOKE CONNECTOR BOARD
DEFLECTION YOKE
HEIGHT
VERT LINEARITY
VERT HOLD
HORIZ MULT V7 6SN7GTB
HORIZ OUTPUT V8 25DN6
HV RECT V10 1X2B
BOOST 450V
DAMPER V9 12D4
HORIZ FREQ
HORIZ HOLD
150V SOURCE
145V SOURCE
SW ON VOLUME CONTROL
JUMPER
TO VHF TUNER FILAMENTS
25DN6 12CA5 12W6GT 5B8 5B8
12D4 21CBP4A 6SN7GTB 3DT6 6AW8A
HORIZ. AFC SELENIUM DIODE TERMINAL GUIDE
PICTURE TUBE V11 21CBP4A
HV TRANSFORMER TERMINAL BOARD (VIEWED FROM WIRING SIDE OF CHASSIS)
RED YEL BLK WH GRN BLUE
VERT. -42a HORIZ. -35a
(10—13KV)
11.5KV
35V
420V
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1 DC voltage measurements taken with vacuum tube voltmeter, AC voltage measured at 1000 ohms per volt
2 Pin numbers are counted in clockwise direction on bottom of socket.
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

CORONADO MODELS TV3-9450A, 9455A, 9456A, 9460A, B, 9461A, B

FOLDER 2

CORONADO MODELS TV3-9450A, 9455A, 9456A, 9460A, B, 9461A, B

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

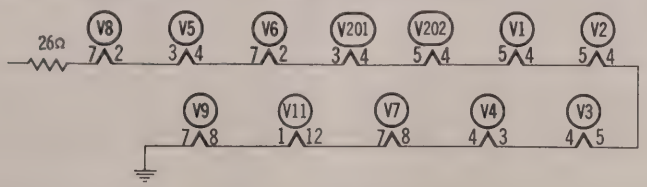
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R61), Rectifier (M1)**

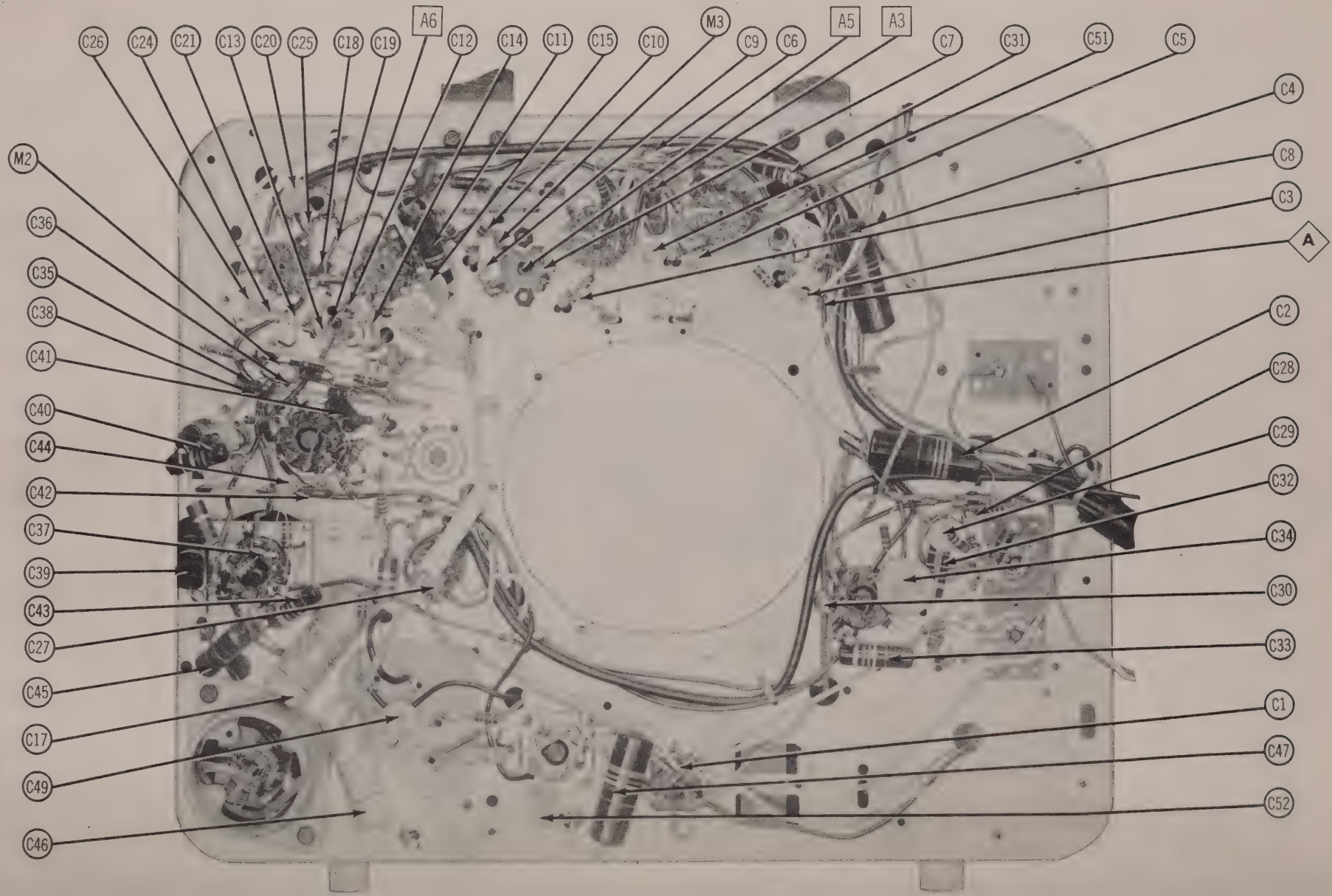
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V1, V2, Diode (M3), V3**
No pic, no sound, has snow - **V201, V202**
No pic, has sound, has raster - **V3, V11**
Has pic, no sound - **V3, V4, V5**

SYNC FAILURE
No vert. sync - **V2**
No horiz. sync - **V2, Rectifier (M2)**
No vert. or horiz. sync - **V2**

SWEEP FAILURE
No raster, has sound - **M2, V7, V8, V9, V10, V11**
No vertical deflection - **V1, V6**
Poor vert. linearity or foldover - **V1, V6**
Poor horiz. linearity or foldover - **V7, V8, V9**
Narrow picture - **V7, V8, V9, M1**
Vert. off freq. - **V1, V6**
Horiz. off freq. - **V7**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).





CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUNER SCHEMATIC

VHF TUNER PART #201-100057

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amplifier	2BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	5CG8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	120		121-001521	DI-00012	DD-121	L10T12	ED-102	UC-5312	5GA-T12	
C202	30		121-001522							5%
C203	15		121-001523	NPO-DI 15	TCZ-15	C10Q15C	TCO-15	ZT-5415	5TCC-Q15	10%
C204	15		121-001524	NPO-DI 15	TCZ-15	C10Q15C	TCO-15	ZT-5415	5TCC-Q15	5%
C205	800		121-001525							
C206	5		121-001526	NPO-DI 5	TCZ-4R7		TCO-5			NPO ±.5mmf
C207	2-8		121-001536							
C208	47		121-001537							
C209	2-6		121-001527							
C210	800		121-001525							
C211	51		121-001528							N470
C212	1									①
C213	2-6		121-001527							
C214	1000		121-001658	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C215	10		121-001530							N900 ± .5mmf
C216	10		121-001532	N750-DI 10	TCN-10		TC7-10			N750 ± .5mmf
C217	1000		121-001533	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C218	82		121-001534							
C219	800		121-001525							
C220	1000		121-001533	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C221	800		121-001525							

① Some versions may use 1.5mmf ± .25mmf (Part #13D-111-6) in this application.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		CORONADO PART No.	NOTES
	OHMS	WATT		
R201	4700Ω		451-253472	
R202	1000Ω		451-253102	
R203	10K		451-253103	
R204	220K		451-253224	

ITEM No.	RATING		CORONADO PART No.	NOTES
	OHMS	WATT		
R205	1000Ω		451-253102	
R206	10K		251-253103	
R207	10K		451-253103	
R208	5600Ω		451-252562	

COILS (RF-IF)

ITEM No.	USE	CORONADO PART No.	NOTES
L201	Ant. Trans.	121-001544	
L202	IF Trap Coil	121-001538	
L203	IF Trap Coil	121-001539	
L204	Coil Assy.	121-001540	Includes rotor

ITEM No.	USE	CORONADO PART No.	NOTES
L205	RF Choke	121-001541	
L206	Mixer Plate Coil	121-001542	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CORONADO PART No.	REPLACEMENT DATA	
K201	Antenna Isolation	470mmf, .2-1meg		Centralab	RC-471
				Sprague	R-9197
K202	Antenna Isolation	470mmf, .2-1meg		Centralab	RC-471
				Sprague	R-9197

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M201	Antenna Input Assy.	121-001556	Includes K201, K202, L201
	Shaft & Rotor Assy.	121-001588	Includes L204

TUNER ALIGNMENT INSTRUCTIONS

OSCILLATOR ALIGNMENT

For adjustment of the oscillator adjustment slugs, it is necessary to remove the rear cover of the receiver. The slugs are reached thru a hole in the tuner rear cover at about 6 o'clock. The oscillator slugs are accessible, one at a time, as the channel selector is rotated. Adjust for best picture and sound.

RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point (A). Positive to chassis.
Disable the local oscillator by replacing the mixer-osc. tube (V202) with one having the oscillator grid pin removed.
Disconnect the antenna lead and connect a short across the antenna terminals.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	44.0MC (10MC Swp)	42.75MC 45.75MC	Any non-interfering channel	Vert. Amp. thru detector (Fig. 1) to (plate) pin 9 of 5B8 (V1). Low side to chassis.	Mixer Plate Coil & A1	Adjust for response similar to Fig. 2 with markers as shown.
2.	1000mmf Ceramic Capacitor	High side to pin 6 (grid) of 5B8 (V1). Low side to chassis.	"	"	"	Vert. Amp. thru detector (Fig. 1) to pin 9 (plate) of 5B8 (V2). Low side to chassis.	A2, A3	"
3.	"	High side to pin 6 (grid) of 5B8 (V2). Low side to chassis.	"	"	"	Vert. Amp. thru 10K to point (B). Low side to chassis. (Across video det. load).	A4, A5	"
4.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V202). Low side to chassis.	"	"	"	"		Retouch mixer plate coil and A1 thru A5 to correct for curve similar to Fig. 3. Remove bias and replace the mixer-osc. tube.

SOUND IF ALIGNMENT

Set the contrast control fully clockwise and the volume control at mid-range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	1000mmf Ceramic Capacitor	High side to point (B). Low side to chassis.	Not used	4.5MC (400∿ 30% AM Mod)	Any non-interfering channel	Vert. Amp. thru detector (Fig. 4) to pin 11 (cathode) of picture tube. Low side to chassis.	A6, A7	Turn A6 fully counter clockwise. Turn A7 fully clockwise (from top). Adjust A6 clockwise for MINIMUM scope indication.
6.	"	"	4.5MC (15KC Swp)	Not used	"	Across secondary of output transformer	A7, A8, A9	Use only enough sweep generator output to provide a usable pattern on scope. Turn A9 fully counter clockwise. Adjust A7, A8 And A9 for maximum indication on scope. Remove test equipment and tune in a TV station. Retouch A9 for MINIMUM buzz.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 6.

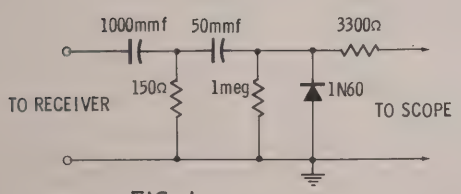


FIG. 1

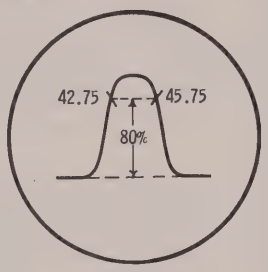


FIG. 2

FIG. 3

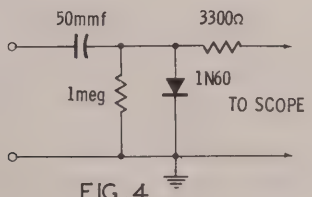


FIG. 4

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp - Vert. Mult		
V2	2nd Video IF Amp - Sync Sep.		
V3	Video Output-Sound IF Amp	6AW8A	
V4	Audio Det	3DT6	
V5	Audio Output	12CA5	
V6	Vert. Mult. - Vert. Output	12W6GT	
V7	Horiz. Mult.	6SN7GTB	
V8	Horiz. Output	25D8	
V9	Damper	1J06GT	
V10	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No	REPLACEMENT DATA			NOTES
	CORONADO PART No	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No
V11	21CBP4-A	21CBP4-A ①	21CBP4/ 21CBP4-A ②	① "Silverama" ③ ② "Silver Screen 66"

ELECTROLYTIC CAPACITORS

ITEM No	RATING CAP	RATING VOLT	REPLACEMENT DATA CORONADO PART No	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	±200	200	245-300001	AFHH3-13-90	KC015B				*TE1630
B	±250	200							
C	±10	200							

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP	RATING VOLT	CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.33	200	501-014334	P288N-33				GEM-3033		
C3	1000		147-100320	BPD-001	DD-103	BYA101DM	ED-1000	DCS31	SHK-DI	
C4	.22	200	501-014324	P288N-33		CUB2P33		GEM-3033	NTM-P33	
C5	390		047-100698			LI07T8	ED-390			10%
C6	1000		147-100320	BPD-001	DD-103	BYA101DM	ED-1000	DCS31	SHK-DI	10%
C7	510		347-100001			LI07T51	ED-820			
C8	1000		147-100320	BPD-001	DD-103	BYA101DM	ED-1000	DCS31	SHK-DI	
C9	4.7		147-200403-06	NPO-SI 4.7	TCS-4R7	C10Y47C	TCO-4.7	ZT-5S47	STCCB-Y47	10%
C10	10		147-100160-11	SI 10	DS-100	LT5Q3	GP-10	UC-541	SGA-Q3	
C11	.047	200	501-014473	P288N-047	DF-503	CUB2S47		GEM-1547	STM-S47	
C12	10		147-100160-11	SI 10	DS-100	LT5Q3	GP-10	UC-541	SGA-Q3	
C13	22		147-100634							
C14	68		147-100635							NPO 10%
C15	10000		147-100234	BPD-01	DD-103	BYA101	ED-01	DCS31	SHK-SI	NTS 10%
C16	.1	200	501-014104	P288N-1	DF-104	CUB2P1		GEM-301	STM-P1	
C17	.22	600	501-014324	P668N-22		CUB6P22		GEM-6022	STM-S22	
C18	47		478-047470	SI 47	DS-470	LT5Q47	GP-47	UC-5447	SGA-Q47	
C19	3		147-100307							5%
C20	10000		147-100234	BPD-01	DD-103	BYA101	ED-01	DCS31	SHK-SI	
C21	1000		147-100320	BPD-001	DD-102	BYA101DM	ED-1000	DCS21	SHK-DI	
C22	15		147-200480							
C23	.047	200	501-014473	P288N-047	DF-503	CUB2S47		GEM-4147	STM-S47	NTS 10%
C24	10000		147-100234	BPD-01	DD-103	BYA101	ED-01	DCS31	SHK-SI	
C25	1000		147-100320	BPD-001	DD-103	BYA101DM	ED-1000	DCS21	SHK-DI	
C26	10000		147-100234	BPD-01	DD-103	BYA101	ED-01	DCS31	SHK-SI	
C27	10000		147-100234	BPD-01	DD-103	BYA101	ED-01	DCS31	SHK-SI	
C28	820		147-100606		DD-821	BYA101S3	ED-820		SGA-TS2	
C29	2000		147-100596	BPD-02	DD-203	BYP5S23	ED-502	DCS23	SGA-S2	
C30	1000		147-100586			L10DR	ED-1000	DCS21	SHK-DI	10%
C31	.0039	400	223-300003							10%
C32	047	200	501-014173							10%
C33	047	200	501-014173							10%
C34	10000	2000	147-100706						20HK5-SI	
C35	100		478-037101	SI 100	DS-101	LT5Y1	GP-100	UC-531	SGA-T1	
C36	47		478-037470	SI 47	DS-470	LT5Q47	GP-47	UC-5447	SGA-Q47	
C37	1000		147-100503	BPD-001	DD-103	BYA101DM	ED-1000	DCS21	SHK-DI	
C38	1000		147-100320	BPD-001	DD-103	BYA101DM	ED-1000	DCS21	SHK-DI	
C39	.1	200	501-014104	P288N-1	DF-104	CUB2P1		GEM-301	STM-P1	
C40	0056	400	245-300004					GEM-16256		10%
C41	330	247	247-300020	1469-00023	DS-331	SRS7S3	CY15C331K		MS-333	10%
C42	680		247-100014	1469-00068	DS-681	LR5T68	CY15C681K		MS-333	10%
C43	0047	200	501-014172					GEM-16247		10%
C44	470		147-100643	BPD-00047	DD-471	BYA101T47	SD-470		SGA-T47	
C45	.1	200	501-014104	P288N-1	DF-104	CUB2P1		GEM-301	STM-P1	
C46	.15	600	501-014154	P688N-15				GEM-6015	STM-P15	
C47	.22	200	501-014324	P288N-33		CUB2P33		GEM-3033	STM-P33	
C48	56	2000	147-200637						20GA-Q56	N750 10%
C49	68	3000	147-200475						30GA-Q68	10%
C50	.22	600	499-034224	P688N-32		CUB2P22		GEM-6022	STM-P22	
C51	1000		147-100320	BPD-001	DD-103	BYA101DM	ED-1000	DCS21	SHK-DI	
C52	10000		147-100234	BPD-01	DD-103	BYA101	ED-01	DCS31	SHK-SI	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA CORONADO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	470K	½	235-300013	B-40	A47-300K-Z	Q3-133	TA56A	Volume
B	Shaft			Not Req.	FS-5	Not Req.	Not Req.	
C	Switch			KS-1 *	SWS-12	TS-1	UB-26	
R2A	1000Ω	½	235-300014	B-506		Q7-108	U3	Contrast
B	Shaft			Not Req.		Not Req.	Not Req.	
R3A	5meg	½	235-300013	B-743		Q7-141	TA56R	Brightness
B	Shaft					Not Req.	Not Req.	
R4A	1.5meg	½	235-300016	B-743	A47-1.5meg -S	Q3-133	TA156L	Vert. Hold
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	2meg	½	025-201386					Vert. Lin.
B	5meg	½						Height with 1meg stop ①
R6A	75K	½	025-101305	AB-35	A47-75K-S	Q1-125	PTA15L	Horiz. Hold
B	Shaft			AK-19	RN-3	TQ	Not Req.	

* Use KN-1 with red label control.
① Alternate part #025-201305 may be used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise stated.

ITEM No.	RATING OHMS	RATING WATT	CORONADO PART No	NOTES
R7	220Ω		451-252221	
R8	10K		451-252103	
R9	150Ω		451-252151	
R10	56Ω		451-252560	
R11	150Ω		451-252151	
R12	180Ω		451-252181	
R13	68000Ω		451-252682	
R14	1meg		451-252105	
R15	3.3meg		451-252335	
R16	2.7meg	2	451-252275	
R17	33000Ω 5%	2	024-101123	
R18	120K		451-252124	
R19	27K		451-252173	
R20	100K		451-252104	
R21	33K		451-252333	
R22	680K		451-252684	
R23	270K		451-252274	
R24	680K		451-252684	
R25	2200Ω		451-252222	
R26	680Ω		451-252681	
R27	120Ω		451-252121	
R28	27K	2	451-252273	
R29	15K	2	451-252153	
R30	12K	1	451-252123	
R31	68000Ω		451-252682	
R32	12K		451-252123	
R33	68K		451-252683	
R34	100K		451-252104	
R35	100K		451-252104	
R36	470K		451-252474	
R37	180K		451-252184	
R38	100K		451-252104	
R39	100K		451-252104	
R40	1.5meg		451-252155	
R41	680Ω		451-252681	
R42	680Ω		451-252681	
R43	220K		451-252224	
R44	470Ω		451-252472	
R45	1meg		451-252105	
R46	1meg		451-252105	
R47	1meg		451-252105	
R48	82K		451-252823	
R49	12K		451-252123	
R50	13000Ω 5%		451-251122	
R51	56K		451-252563	Note 1
R52	47K		451-252473	
R53	3300Ω		451-252331	
R54	390K		451-252394	
R55	390K		451-252394	
R56	47K		451-252473	
R57	12000Ω	2	223-200009	
R58	68000Ω		451-252682	
R59	2.2Ω		451-252022	
R60	2200Ω		451-252222	
R61	4.7Ω	3	024-301118	
R62	2Ω 5%	15	224-300007	

Note 1. Some versions may use 68K (Part #451-252683) in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA CORONADO PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T1	Vert. Output	255-100011	Z1900 1	A-2822 2			26S75 1		
T2A	Yoke-Horiz. (25MH)	053-300396	DF-410 3 4	MDF-12 3 4	T90F19/43 3 4			Y-45 & NW19 4	
B	90°-Vert. (40MH)								
M5	Rear Cover & Centering Device	231-300003							
	Yoke Clamp	378-300024							
T3	Horiz. Output	055-300301		HVO-134	X054 *		HO-297 *		D-124

① Use 6 to 1 turns ratio.
② Drill new mounting hole(s).
③ Use original yoke damping network, if necessary. Use original rear cover and centering device.
④ Connect same as original.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
2			2	2		
4			4	4		
3			3	3		
1			1	1		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA CORONADO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	4000Ω	3-4Ω	255-100012	Z1107 ①	A-3096	AU-601 ①	A-3328	24S46	S-4X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA CORONADO PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	255-300007①	4A07	① Used in Model TV3-9450A
	6"	PM		255-300005②		② Used in Models TV3-9455A, 9456A, 9460A, B, 9461A, B

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA CORONADO PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	1st. Video IF	051-202167	17-4534	TV-131		VF-4	
L2	2nd. Video IF	051-202168					
L3	3rd. Video IF	050-200588					
L4	RF Choke	053-100307		TB-1			
L5	Shunt Peaking Coil	051-102102		TV-207	6156		T. S Microhenries
L6A	4.5MC Trap	051-201998		TV-130			808 Microhenries
B	1st. Sound IF						
L7	Shunt Peaking Coil	051-102101	19-6400 *	TV-201 *	6154 *		
L8	Series Peaking Coil	051-102184	19-5160 ▲	TV-196 ▲	6130 ▲	VP-5 ▲	333 Microhenries, wound on 390Ω resistor
							163 Microhenries, wound on 27K resistor
L9	2nd. Sound IF	051-202166					
L10	Quadrature Coil	051-201987	20-1005 *	TV-121 *	1480 *		T. S Microhenries, IRC part #CLA
L11	RF Chobe	053-100343					

* Parallel with 390Ω resistor.
▲ Parallel with 27K resistor.

△ Drill new mounting hole.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES PRI.	DC RES SEC.	REPLACEMENT DATA CORONADO PART No.	Meissner PART No	Merit PART No	Miller PART No.	Ram PART No	Thordarson PART No	NOTES
L12	24Ω		051-202169	19-1875	TV-163 *	6210 *	K-102 *	88-4	*Enlarge mounting hole.

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	RATINGS DC RES.	RATINGS INDUCTANCE @ CURRENT 1000 (~)	REPLACEMENT DATA CORONADO PART No.	Halldorson PART No	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No	Tried PART No.
L13	250A	16Ω	.45 Hy.	256-200002	CS037 ①			C-2328①	26C93 ①	C-37X

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	CORONADO PART No	REPLACEMENT DATA
K1	Sync Coupling	25mmf, 270mmf, 10000mmf, 330K, 3.3meg	048-100046	Aerovox PA-833 Centralab PC-353 Sprague ST-3
K2	Bracket Isolation	470mmf, .3-1meg	049-100072	Centralab RC-4TI Sprague R-8TI

RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA CORONADO PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.190A	237-300001 ①	1N1007 ①	MR350 ②	M500 ①		① Silicon type.
M2		037-300328 ①	1215 ① ③	1T1-③ ④			② Germanium type
							③ Selenium type
							④ Two required.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA CORONADO PART No.	CBS PART No.	SYLVANIA PART No.	NOTES
M3	1N295	019-301580	1N60	1N60	Video Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M4	Tuner	201-100067	VHF
M5	Rear Cover & Centering Device	231-300003	Includes yoke cover

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	222-100005	
Mask	207-100058	
Knob	215-200052	On-Off-Volume
Knob	215-200053	Contrast
Knob	215-200054	Brightness
Knob	215-200055	Vert. Hold
Knob	215-200056	Channel Selector
Knob	215-200057	Fine Tuning
Leg	278-300009	Models TV3-9450A, B
Leg	278-300010	Models TV3-9461A, B
Foot	061-100702	Model TV3-9450A
Cabinet	278-700019	Model TV3-9450A
Cabinet	278-700021	Model TV3-9455A
Cabinet	278-700022	Model TV3-9456A
Cabinet	278-700008	Model TV3-9460A
Cabinet	278-700007	Model TV3-9461A
Cabinet	278-700025	Model TV3-9460 B
Cabinet	278-700026	Model TV3-9461B

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Pair) or 8484 (Round) - 4 Conductor 8486 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

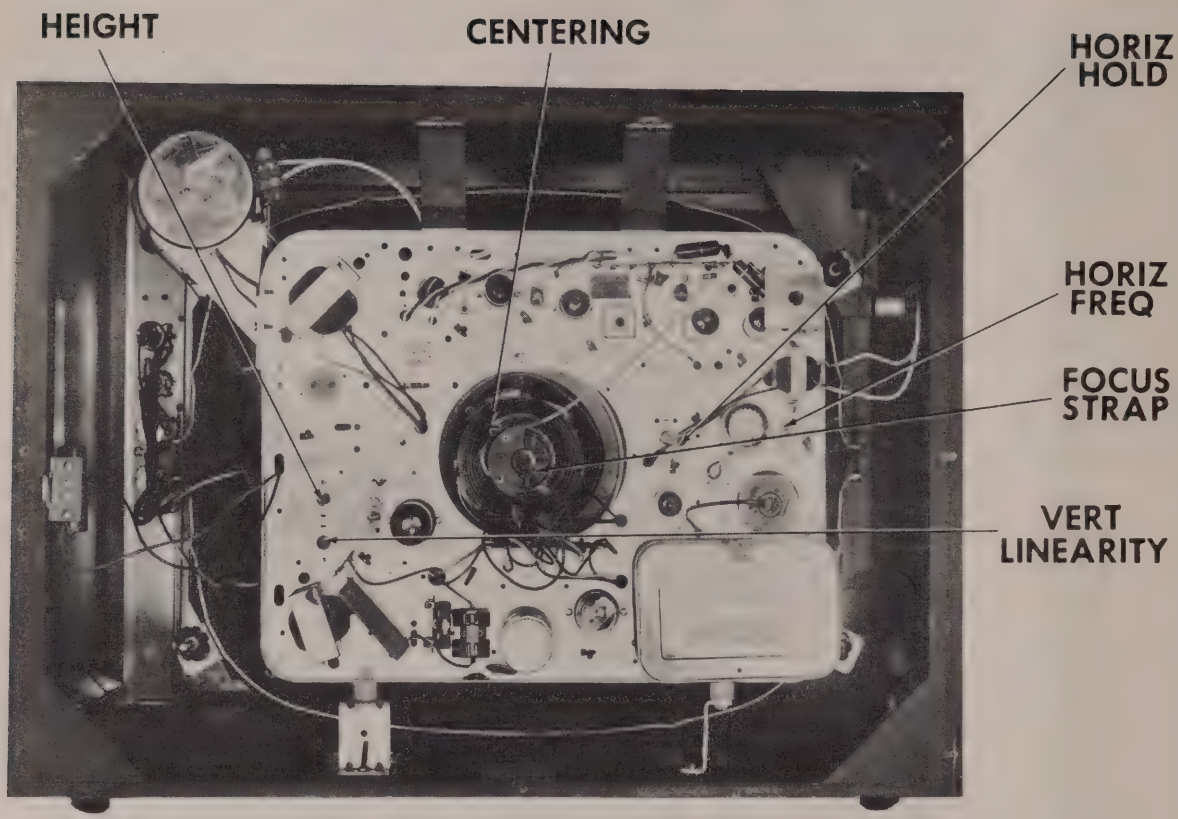
CORONADO MODELS TV3-9450A, 9455A, 9456A, 9460A, B, 9461A, B

FOLDER 2

CHASSIS TOP VIEW

MIXER PLATE COIL
C220
C216
R207
C211
C215
C212
R208
R205
C210
C221
K202
L201
M201
L204
K201
C202
C219
C205
L202
C201
L203
C218
L205
C217
R206
C214
R202
R203
C213
R204
C209
C206
R201
C207
L206
C203
C204
C208

RF TUNER



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the horizontal hold control to the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

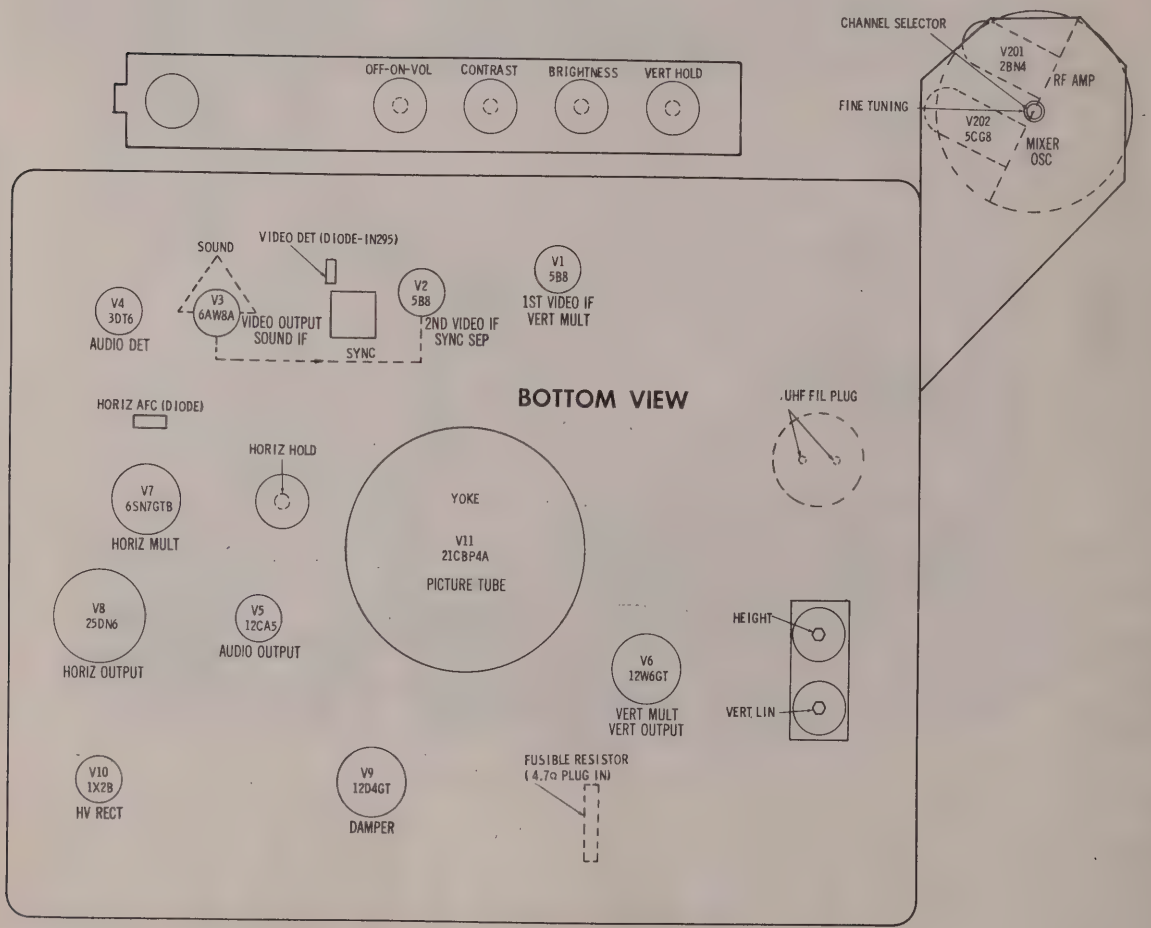
Check other stations and if necessary, retouch B1 for best sync on all channels.

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	5B8	0Ω	• 1meg	• † 2meg	8.5Ω	9.5Ω	1meg	56Ω	† 150Ω	† 150Ω
V2	5B8	0Ω	2.2meg	† 8000Ω	7.5Ω	8.5Ω	.1Ω	180Ω	† 150Ω	† 150Ω
V3	6AW8A	0Ω	100K	† 35K	5.5Ω	7.5Ω	•60Ω	1.3meg	† 16Ω	† 3300Ω
V4	3DT6	4.2Ω	680Ω	5.5Ω	5Ω	‡700K	† 2200Ω	680K		
V5	12CA5	120Ω	0Ω	16Ω	13Ω	0Ω	† 2200Ω	† 225Ω		
V6	12W6GT	TP	11Ω	† 256Ω	† 16Ω	• 2meg	TP	13.5Ω	0Ω	
V7	6SN7GTB	2meg	† 12K	1200Ω	• 80K	† 47K	1200Ω	3.5Ω	5Ω	
V8	25DN6	TP	16Ω	0Ω	1meg	430K	TP	20Ω	† 1200Ω	TOP CAP ‡13Ω
V9	12D4	NC	TP	¶	NC	† 16Ω	NC	0Ω	2Ω	
V10	1X2B		PINS	1 THRU 9	HAVE	INFINITE	RESISTANCE			TOP CAP ‡453Ω
V11	21CBP4A	2Ω	11Ω	PIN 6 ‡27K	PIN 10 ‡27K	PIN 11 • 150K	PIN 12 3.5Ω			
V201	2BN4	0Ω	1meg	11Ω	10.5Ω	† 1200Ω	0Ω	1meg		
V202	5CG8	10K	† 5800Ω	0Ω	9.5Ω	10.5Ω	† 1200Ω	† 10K	0Ω	230K

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 150V SOURCE.
‡ MEASURED FROM PIN 3 OF V9.
NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type knobs from the side.
2. Remove 4 metal screws holding the two shields on the tuner shafts.
3. Remove 6 metal screws from the rear cover.
4. Remove 2 metal screws from the bottom holding the front and remove the front.
5. Place the receiver face down on a soft pad.
6. Remove 2 metal screws holding the handle.
7. Remove 8 metal screws from the bottom holding the chassis.
8. Lift cabinet up and off the chassis.

MODEL 14PD8053U (CH. KCS111D)

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.
Care should be exercised when connecting test equipment or physically contacting the chassis.

TRADE NAME	RCA Victor	MODELS	CHASSIS
		14PT8021, 14PT8022	KCS111A
		14PT8021U, 14PT8022U	KCS111B
		14PD8053, 14PD8054, 14PD8055, 14PD8057	KCS111C
		14PD8053U, 14PD8054U, 14PD8055U, 14PD8057U	KCS111D
		14VT8155, 14VT8157	KCS111F
		14VT8155U, 14VT8157U	KCS111H
		(Amplifier Chassis)..	KRS23A

MANUFACTURER	Radio Corporation of America, RCA Victor Tele. Div., Camden 8, N.J.
TYPE SET	Television Receiver
TUBES	Sixteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 125 Watts, 1.1 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

MODELS 14VT8155, U, 14VT8157, U USE RCA VICTOR RECORD CHANGER RP190C-3. FOR SERVICE INFORMATION ON THIS UNIT SEE PHOTOFACT SET 144 - FOLDER 7.

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Remove 2 screws from the shield on tuner shaft; remove the shaft. Set the fine tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area. Channel 12 adjustment is located at 3 o'clock, proceed in a counter clockwise direction adjusting for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 2 screws from bottom of the front. Remove the front and safety glass.

FOCUS

This receiver operates with a fixed focus, having a fixed voltage applied to the focusing electrode of the picture tube.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

The horizontal frequency coil is used as the horizontal hold control. Adjust the horizontal hold until the picture synchronizes horizontally. (For location, see tube placement chart).

FUSE DEVICE

A 5.6Ω fusible resistor (R108) is used for LV power supply protection. (For location, see tube placement chart).

CENTERING

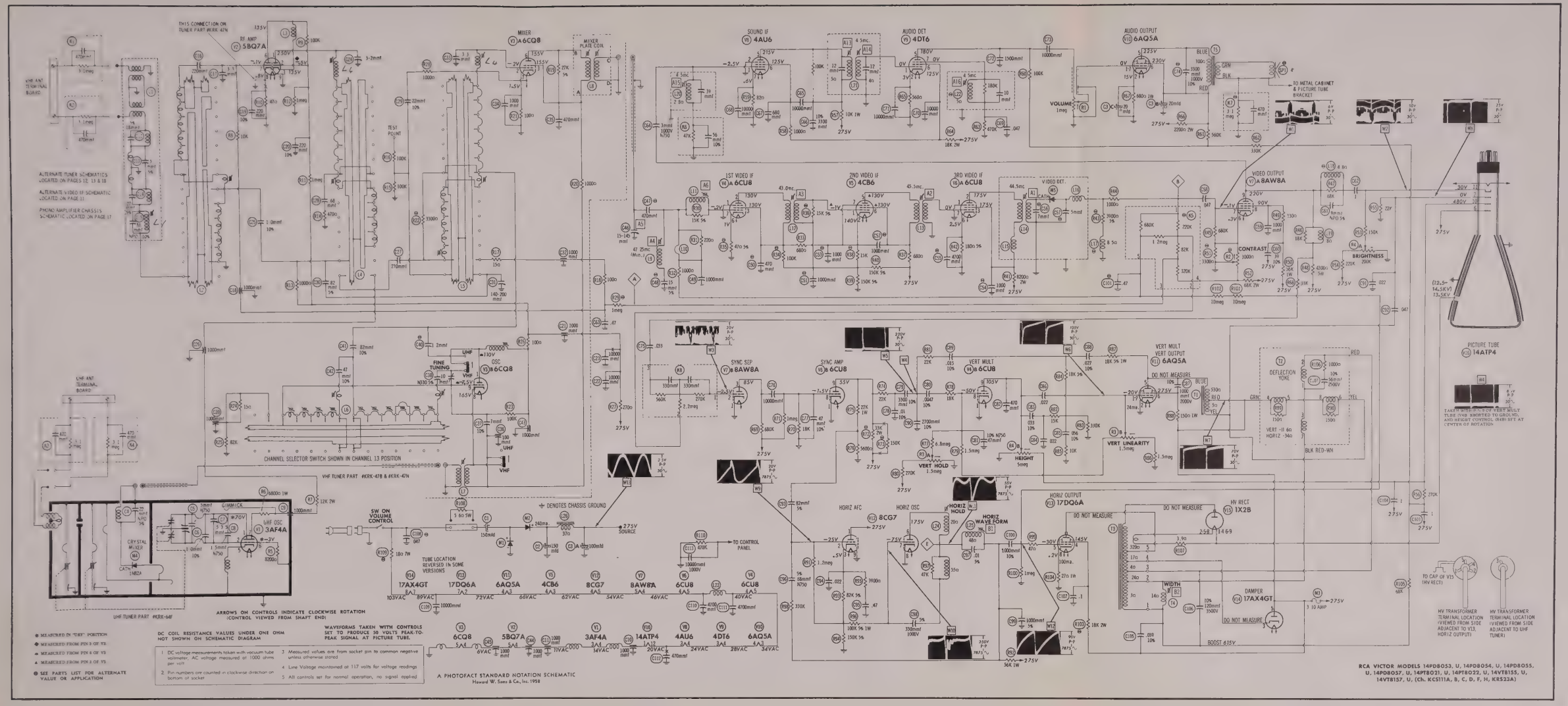
Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

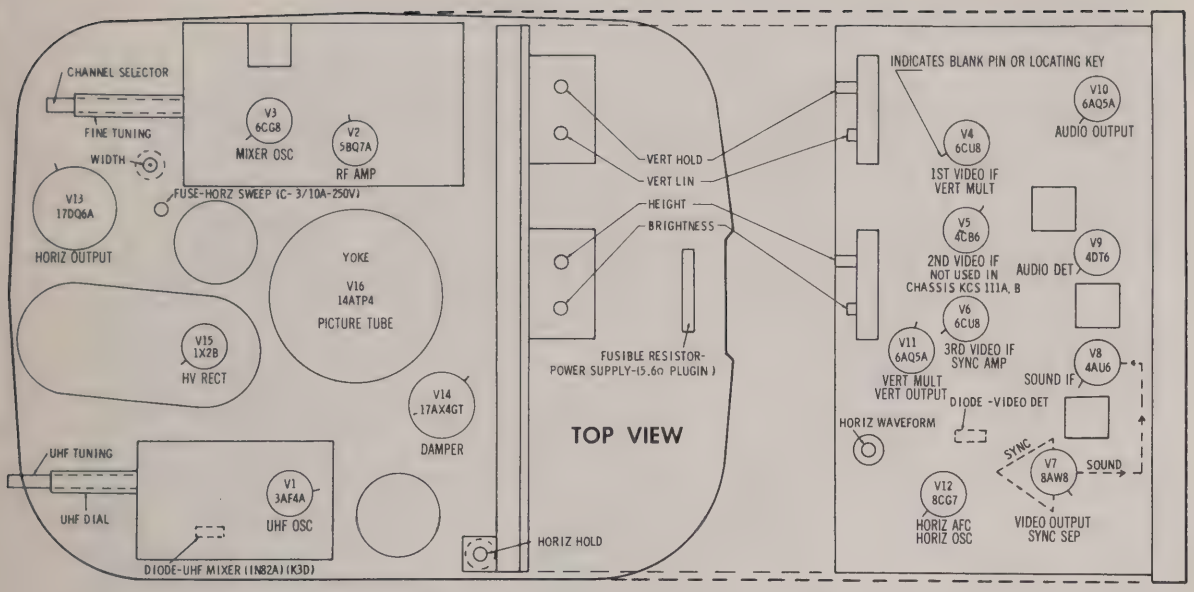
RCA VICTOR MODELS 14PD8053, U, 14PD8054, U, 14PD8055, U, 14PD8057, U, 14PT8021, U, 14PT8022, U, 14VT8155, U, 14VT8157, U, (Ch. KCS111A, B, C, D, F, H, KRS23A)

SET 396 FOLDER 3



RCA VICTOR MODELS 14PD8053, U, 14PD8056, U, 14PD8055, U, 14PD8057, U, 14PT8021, U, 14PT8022, U, 14VT8155, U, 14VT8157, U, (Ch. KCS111A, B, C, D, F, H, KRS23A)

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

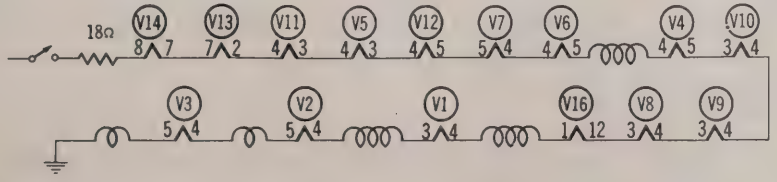
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R108), Rectifier (M1, M2)**

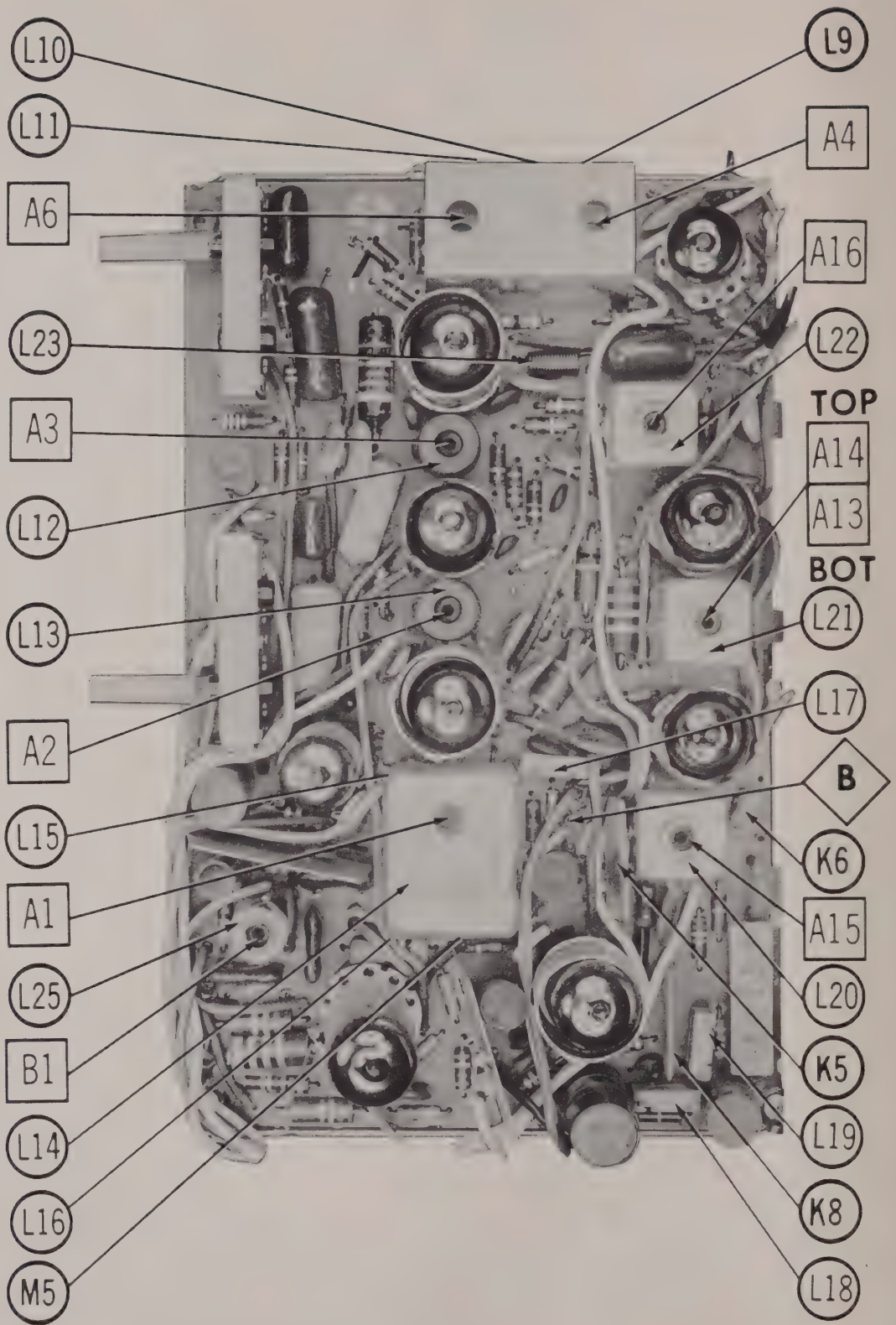
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V4, V5, V6, Diode (M5), V7**
No pic, no sound, has snow - **V2, V3, V4 (V1 UHF only)**
No pic, has sound, has raster -**V7, V16**
Has pic, no sound - **V8, V9, V10**

SYNC FAILURE
No vert. sync - **V7, V6**
No horiz. sync - **V7, V6, V12**
No vert. or horiz. sync - **V7, V6**

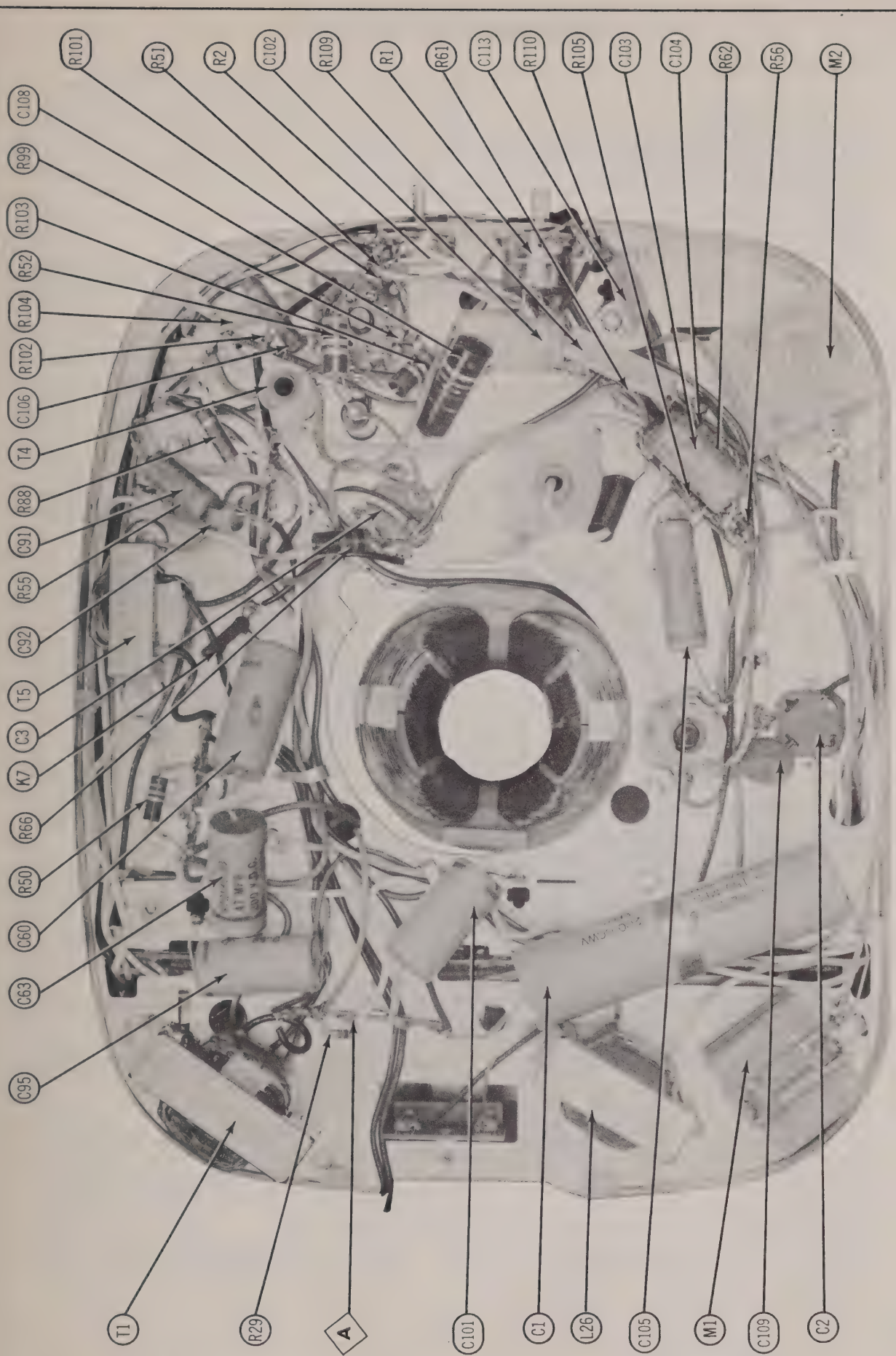
SWEEP FAILURE
No raster, has sound - **Fuse (M3), V12, V13, V14, V15, V16**
No vertical deflection - **V4, V11**
Poor vert. linearity or foldover - **V4, V11**
Poor horiz. linearity or foldover - **V12, V13, V14**
Narrow picture - **V12, V13, V14, M1, M2**
Vert. off freq. - **V4, V11**
Horiz. off freq. - **V12**

This receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below).





PRINTED BOARD - INDUCTOR & ALIGNMENT IDENTIFICATION



PRINTED BOARD - CAPACITOR IDENTIFICATION

SET 396 FOLDER 3

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT FOR CHASSIS KCS111C, D, F, H

Connect the negative lead of a 4 volt bias supply to point Ⓐ . Positive to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V3). Low side to chassis.	44.5MC (Unmod)	Any non-interfering channel	DC probe thru 10K to point Ⓑ . Common to chassis.	A1	Use only enough generator output to provide a usable indication on VTVM. Adjust for maximum deflection.
2.	"	"	45.5MC	"	"	A2	"
3.	"	"	43.0MC	"	"	A3	"
4.	"	"	47.25MC	"	"	A4	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK FOR CHASSIS KCS111C, D, F, H

Connect bias as under "Video IF Alignment"
Remove the 1st. video IF tube (V4). Install an adapter socket and replace V4. Connect 180Ω resistor between pins 2 and 3 of adapter socket.
If separate marker generator is used, couple loosely to high side of the sweep output cable.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V3). Low side to chassis.	45.0MC (10MC Swp)	42.5MC 45.75MC	4	Vert. Amp. thru detector probe to pin 2 of adapter socket. Low side to chassis.	Mixer Plate Coil & A5, A6	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
6.	"	"	"	42.5MC 45.0MC 45.75MC	"	Vert. Amp. thru 10K to point Ⓑ . Low side to chassis.		Remove adapter socket and replace V4 in tube socket. Check for response similar to Fig. 2 with markers as shown. If necessary, retouch A1 thru A3 for correct response.
7.	Fig. 11	"	Not used	45.75MC (Unmod)	"	Leave scope connected. Connect DC probe of VTVM thru 10K to point Ⓑ. Common to chassis.	Signal level	Adjust signal generator output to provide VTVM reading of 1.5 volts. DO NOT change level in the following steps.
8.	"	"	45.0MC (10MC Swp)	41.25MC 42.5MC 45.0MC 45.75MC	"	"	A1, A3	Adjust for 1.2 to 1.5 volts. Check for response similar to Fig. 2.

VIDEO IF ALIGNMENT FOR CHASSIS KCS111A, B

Connect the negative lead of a 4 volt bias supply to point Ⓒ . Positive to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V3). Low side to chassis.	44.5MC (Unmod)	Any non-interfering channel	DC probe thru 10K to point Ⓓ . Common to chassis.	A7, A8, A9	Adjust for maximum deflection. Use only enough generator output to provide a usable indication on VTVM.
2.	"	"	47.25MC	"	"	A10	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK FOR CHASSIS KCS111A, B

Connect bias as under "Video IF Alignment".
Remove the 1st. video IF tube (V4). Install an adapter socket and replace V4. Connect 180Ω resistor between pins 2 and 3 of adapter socket.
If a separate marker generator is used, couple loosely to the high side of the sweep output cable.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V3). Low side to chassis.	45.0MC (10MC Swp)	42.5MC 45.75MC	4	Vert. Amp. thru detector probe (Fig. 1) to pin 2 of adapter socket. Low side to chassis.	Mixer Plate Coil & A11, A12	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown.
4.	"	"	"	42.5MC 45.0MC 45.75MC	"	Vert. Amp. thru 10K to point Ⓓ . Low side to chassis.		Check for response similar to Fig. 4 with markers as shown. If necessary, retouch A7 thru A9 for correct response.
5.	Fig. 3	"	Not used	45.75MC (Unmod)	"	Leave scope connected. Connect DC probe of VTVM thru 10K to point Ⓓ . Common to chassis.	Signal level	Adjust signal generator output level to provide a VTVM reading of 1.5 volts. DO NOT change level in next step.
6.	"	"	45.0MC (10MC Swp)	42.5MC 45.0MC 45.75MC	"	"	A7, A9	Adjust for 1.2 to 1.5 volts on VTVM. Check for response similar to Fig. 4.

ALIGNMENT INSTRUCTIONS (cont)

SOUND IF ALIGNMENT

Connect the negative lead of a 10 volt bias supply to point Ⓐ (Ch. KCS111A, B point Ⓒ). Positive to chassis.
Set the meter for negative voltage readings.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.001mfd	High side to point Ⓑ (or Ⓓ on some chassis). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe thru diode detector (Fig. 5) to pin 7 (grid 3) of 4DT6 (V9). Common to chassis. Connect scope across voice coil of speaker.	A13, A14	Adjust for maximum negative voltage. Use only enough generator output to provide a usable indication on VTVM. Peak with maximum core separation.
10.	"	"	"	"	"	A15	Adjust for maximum negative DC voltage on VTVM. Use only enough generator output to provide usable indication on VTVM.
11.	Remove the DC probe and detector. Turn off signal generator and tune in a strong TV signal. Adjust volume control for normal operation. Set A16 so that core is flush with top of form. Observe scope and listen to sound. Adjust A16 clockwise to peak output. (Continue clockwise to a second louder peak and adjust for maximum output at this second peak.)						

ALTERNATE SOUND IF ALIGNMENT USING FM GENERATOR

Connect the negative lead of a 10 volt bias supply to point Ⓐ (on some chassis point Ⓒ). Positive to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.001mfd	High side to point Ⓑ (or point Ⓓ on some chassis). Low side to chassis.	4.5MC (400∿ FM Mod. 15KC Swp)	Any non-interfering channel	DC probe thru diode detector (Fig. 5) to pin 7 (grid 3) of 4DT6 (V9). Common to chassis.	A13, A14	Adjust for maximum negative voltage on VTVM. Use only enough generator output to provide a usable indication on VTVM. Peak with maximum core separation.
10.	"	"	"	"	"	A15	Adjust for maximum negative voltage on VTVM. Use only enough generator output to provide a usable indication on VTVM.
11.	"	"	"	"	USE SCOPE. Across voice coil of speaker.	A16	Adjust for maximum 400∿ indication on scope. Use only enough signal to produce .7 volts peak to peak on scope when A16 is peaked.
12.	"	"	"	"	"		Decrease input signal to MINIMUM usable level and retouch A13, A14 and A15 for symmetrical break out similar to Fig. 6.

TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

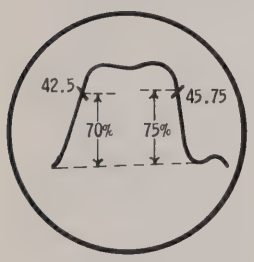


FIG. 1

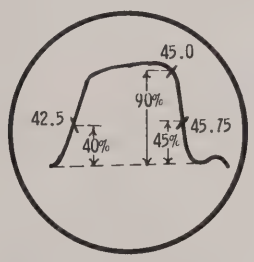


FIG. 2

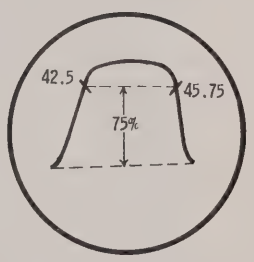


FIG. 3

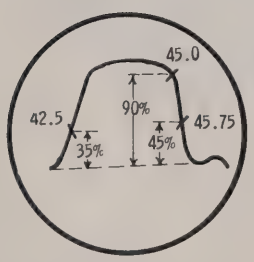


FIG. 4

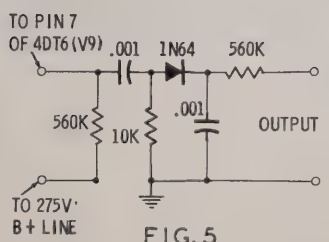
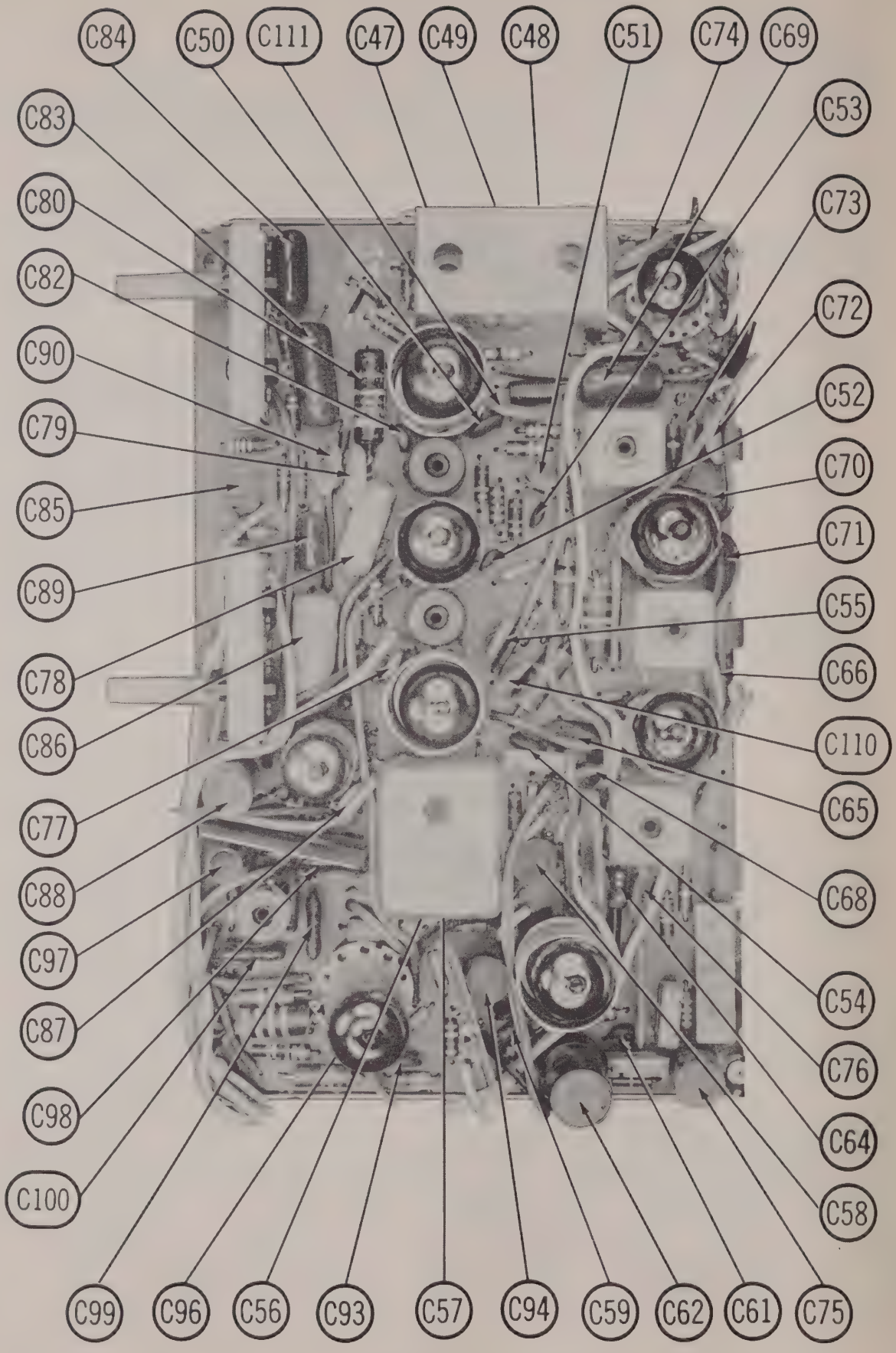


FIG. 5

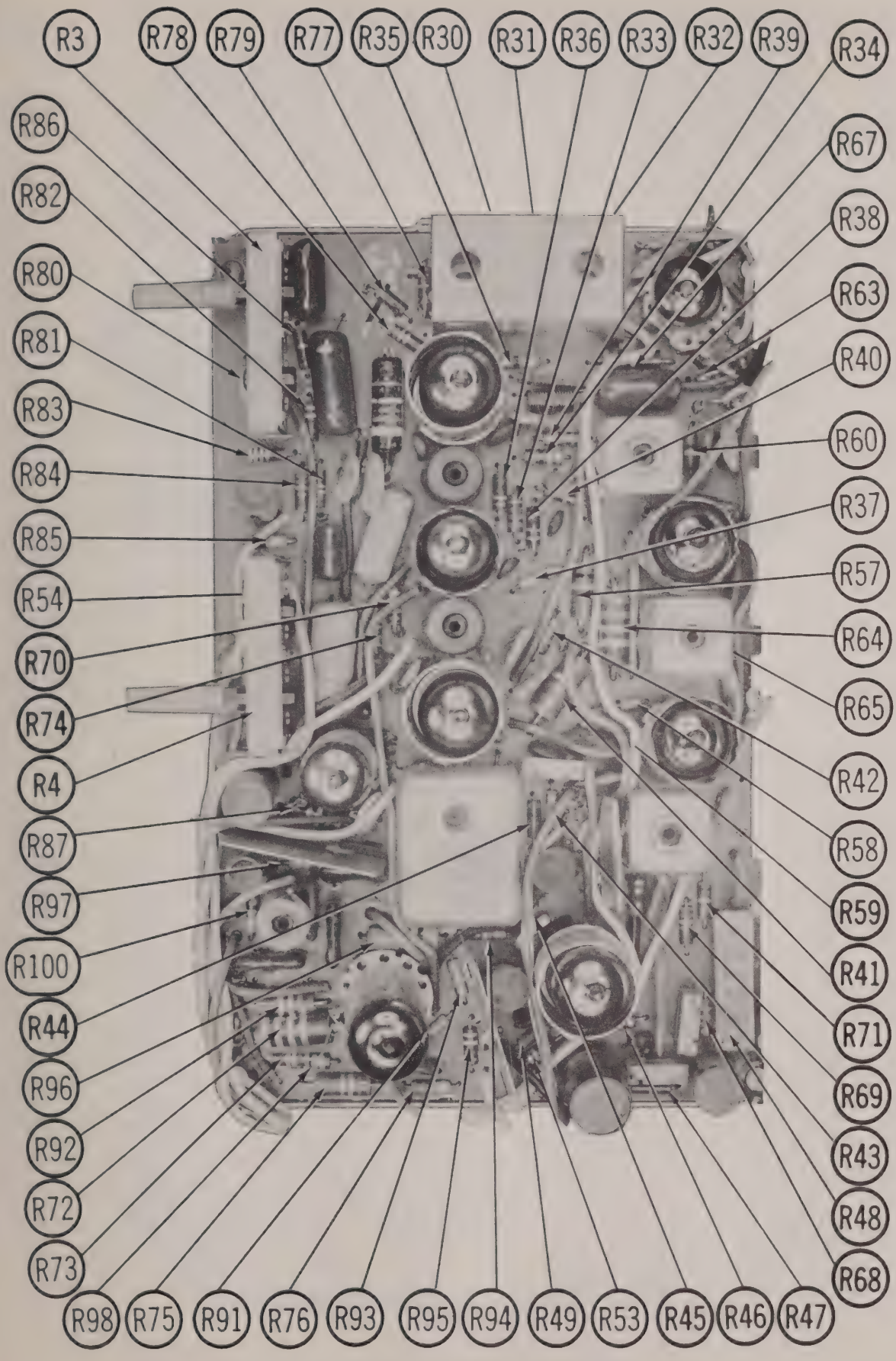
FIG. 6

RCA VICTOR MODELS 14PD8053, U, 14PD8054, U, 14PD8055, U, 14PD8057, U, 14PT8021, U, 14PT8022, U, 14VT8155, U, 14VT8157, U. (Ch. KCS111A, B, C, D, F, H, KRS23A)

FOLDER 3



PRINTED BOARD - RESISTOR IDENTIFICATION



CHASSIS-BOTTOM VIEW

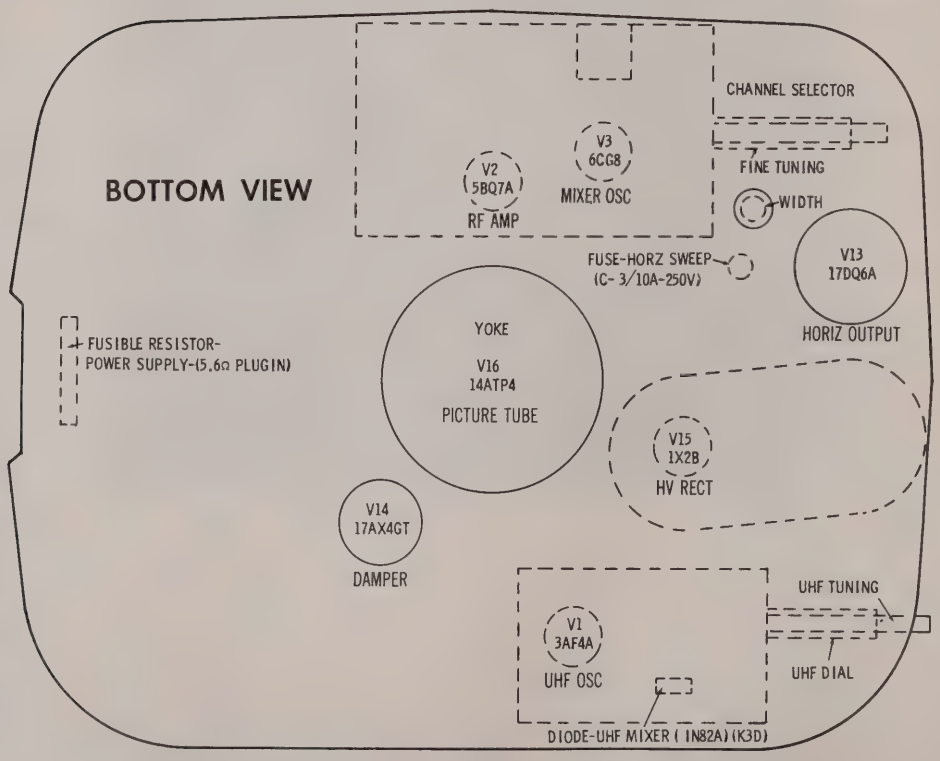
RCA VICTOR MODELS 14PD8053, U, 14PD8054, U, 14PD8055, U, 14PD8057, U, 14PT8021, U, 14PT8022, U, 14VT8155, U, 14VT8157, U (Ch. KCS111A, B, C, D, F, H, KRS23A)

FOLDER 3

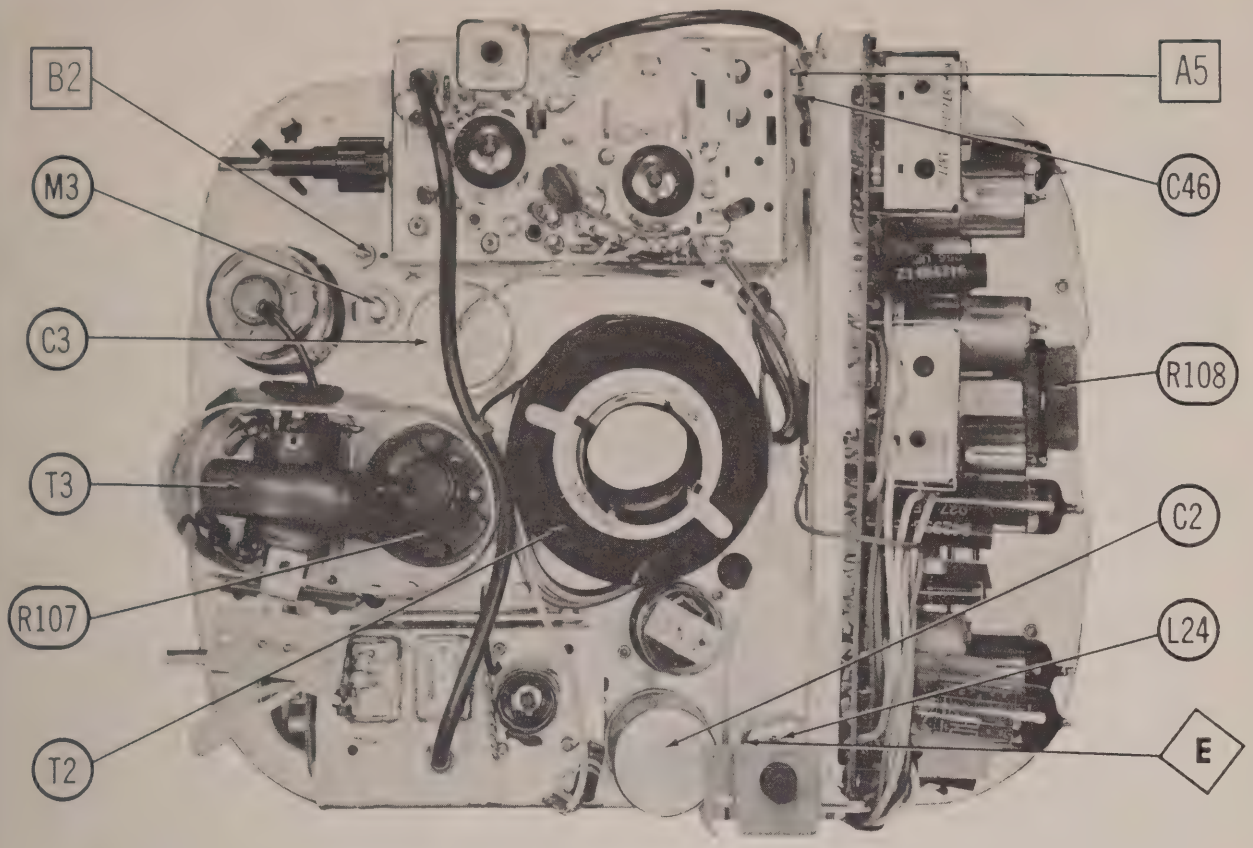
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3AF4A	†*20K	*8200Ω	4Ω	4.5Ω	*0Ω	*8200Ω	†*20K		
V2	5BQ7A	†1300Ω	500K	600K	4Ω	2Ω	600K	1.1meg	47Ω	0Ω
V3	6CQ8	†370Ω	100K	INF	2Ω	.1Ω	INF	100Ω	INF	†100K
V4	6CU8	0Ω	▲680Ω	▲680Ω	12Ω	10Ω	47Ω	440K	• 2.3meg	• ǂ1.3meg
V5	4CB6	▲15K	90K	18Ω	19Ω	†680Ω	†680Ω	90K		
V6	6CU8	0Ω	†8200Ω	†8200Ω	14Ω	12Ω	180Ω	.1Ω	18K	†15K
V7	8AW8A	0Ω	2.6meg	†680K	14Ω	16Ω	• 90Ω	680K	†56K	†4300Ω
V8	4AU6	47K	0Ω	6Ω	7Ω	†10K	†19K	82Ω		
V9	4DT6	4Ω	560Ω	7Ω	8Ω	ǂ460K	†18K	470K		
V10	6AQ5A	0Ω	680Ω	10Ω	8Ω	†2500Ω	†2200Ω	0Ω		
V11	6AQ5A	• 1.8meg	0Ω	19Ω	21Ω	†500Ω	†150Ω	• 1.8meg		
V12	8CG7	†0Ω	1.3meg	230K	18Ω	16Ω	†56K	250K	0Ω	0Ω
V13	17DQ6A	TP	21Ω	TP	†18K	800K	TP	24Ω	27Ω	TOP CAP ǂ17Ω
V14	17AX4GT	NC	NC	¶	NC	†0Ω	NC	24Ω	28Ω	
V15	1X2B	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ǂ337Ω
V16	14ATP4	4.5Ω	22K	PIN 6 †0Ω	PIN 10 ǂ310K	PIN 11 •190K	PIN 12 6Ω			

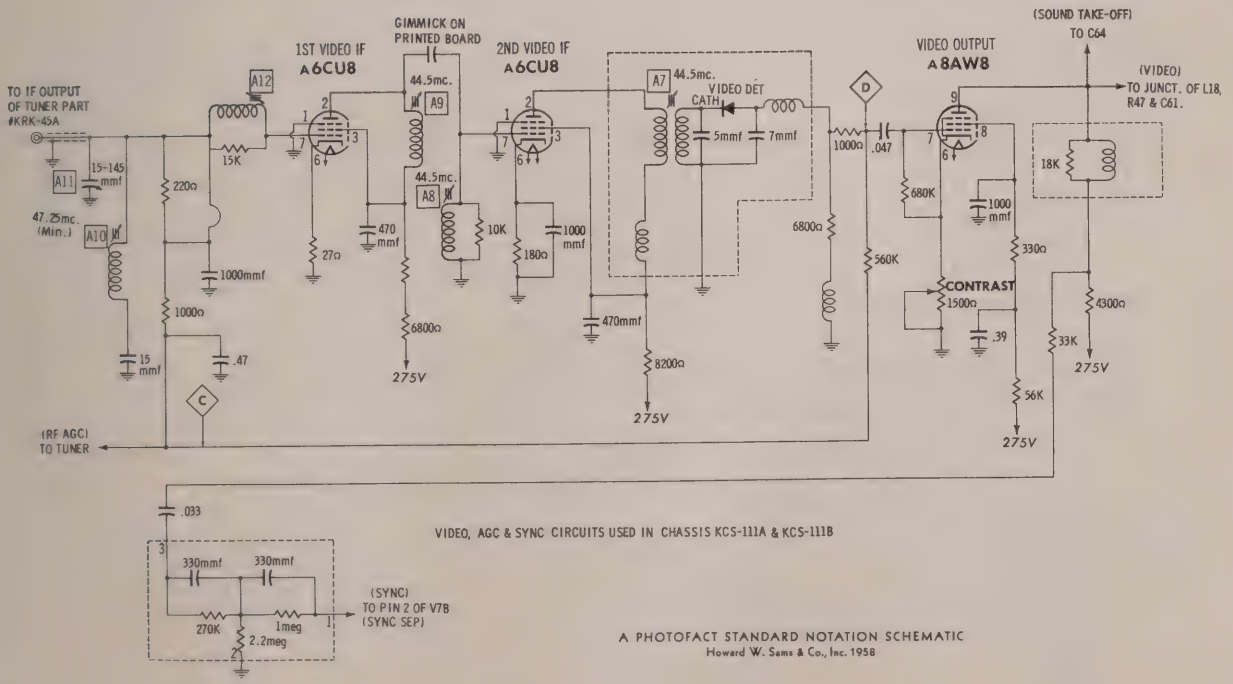
¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 275V SOURCE.
ǂ MEASURED FROM PIN 3 OF V14.
▲ MEASURED FROM PIN 7 OF V5.
* MEASURED IN "UHF" POSITION.
NC NO CONNECTION.
TP TIE POINT.



TUBE PLACEMENT CHART



CHASSIS TOP VIEW

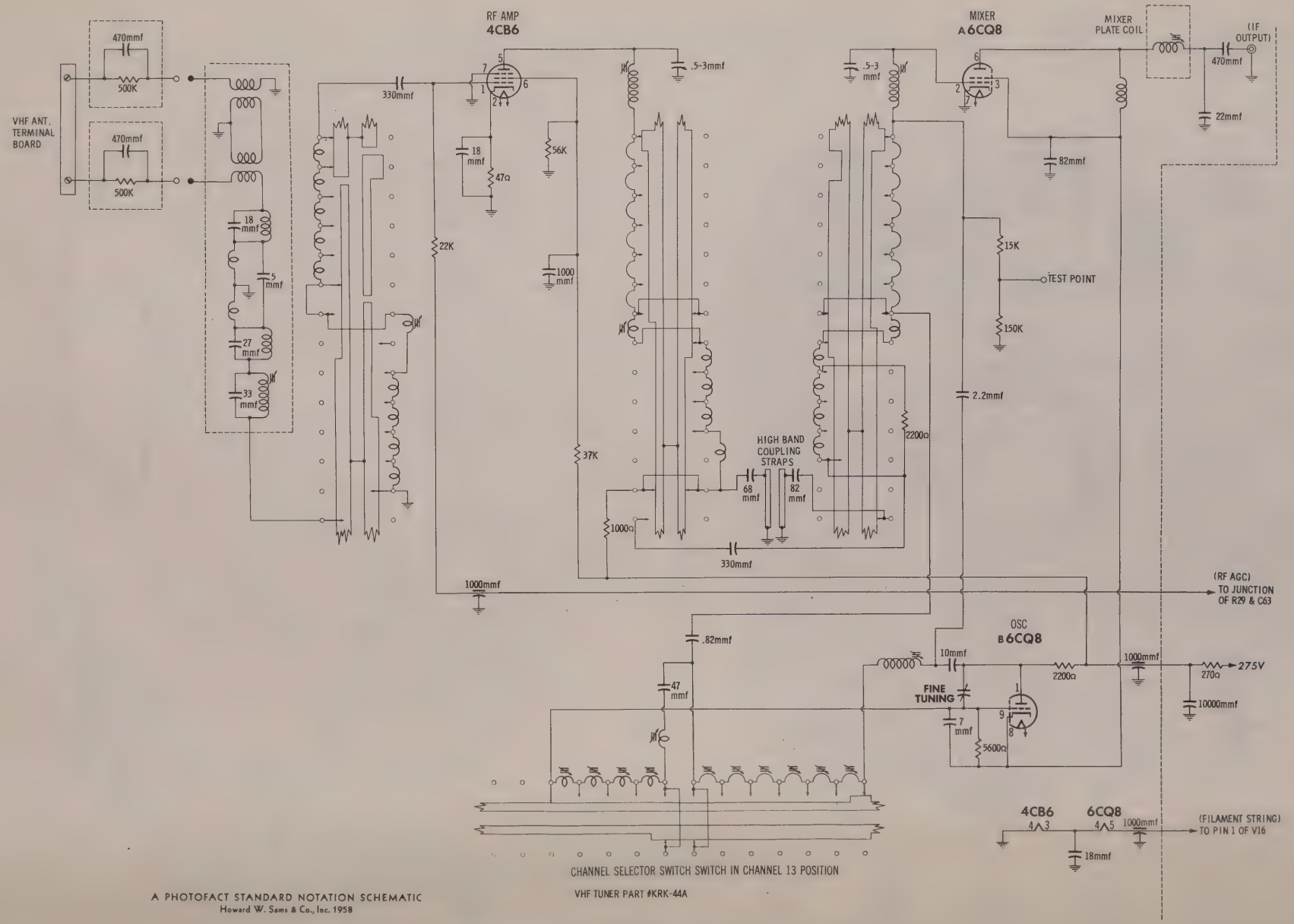


VIDEO, AGC & SYNC CIRCUITS USED IN CHASSIS KCS-111A & KCS-111B

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

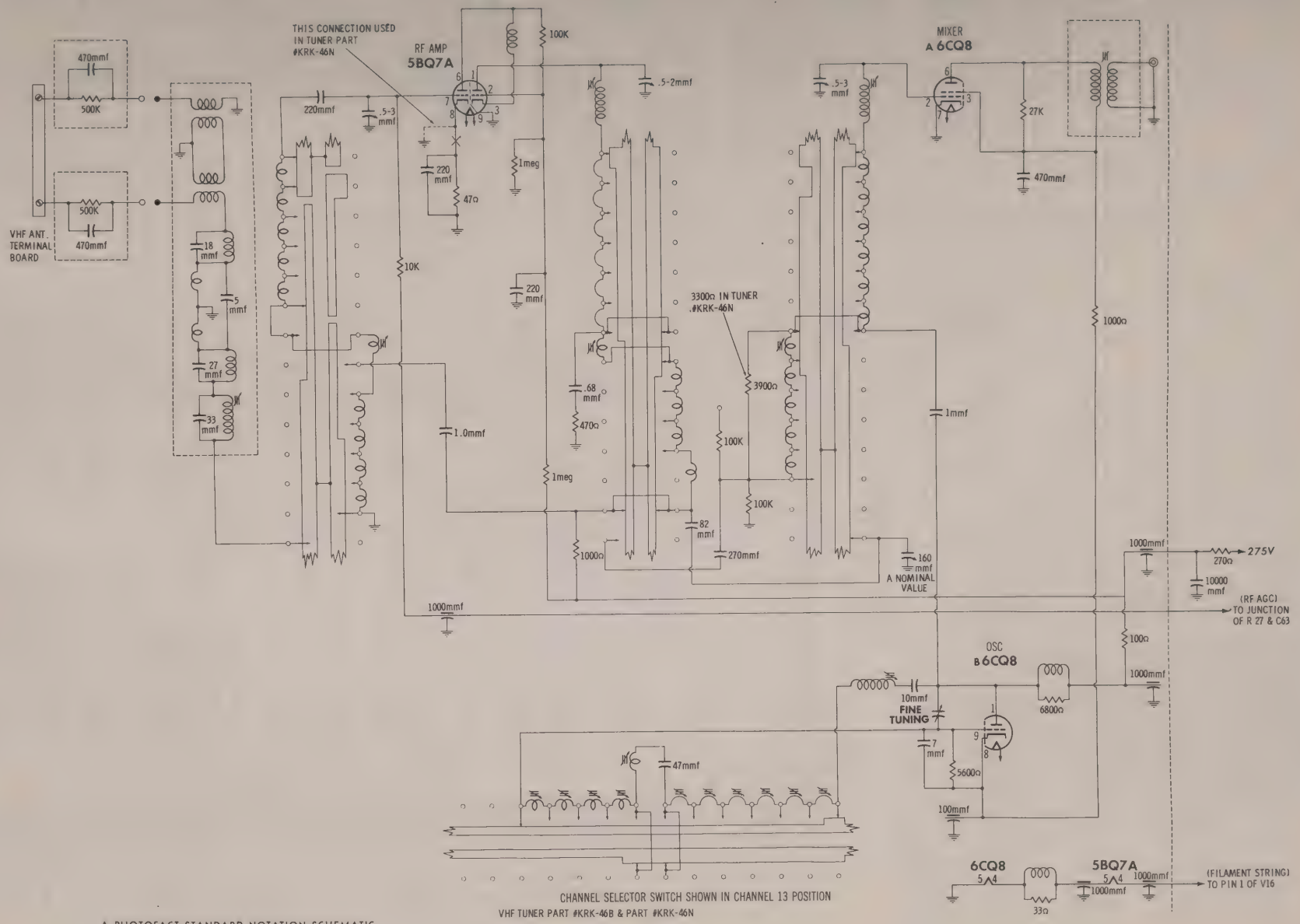
ALTERNATE VIDEO IF SCHEMATIC

SET 396 FOLDER 3



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ALTERNATE VHF TUNER SCHEMATIC



A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ALTERNATE VHF TUNER SCHEMATIC

RCA VICTOR MODELS 14PD8053, U, 14PD8054, U, 14PD8055, U,
14PD8057, U, 14PT8021, U, 14PT8022, U, 14VT8155, U,
14VT8157, U (Ch. KCS111A, B, C, D, F, H, KRS23A)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	UHF Osc	3AF4A	
V2	RF Amp	5BQ7A	
V3	Mixer-Osc	6CQ8	
V4	1st Video IF Amp.- Vert Mult	6CU8	
V5	2nd Video IF Amp.	4CB6	
V6	3rd Video IF Amp - Sync Amp	6CU8	

ITEM No	USE	TYPE	NOTES
V7	Video Output-Sync Sep.	8AW8A	
V8	Sound IF Amp.	4AU6	
V9	Audio Det.	4U76	
V10	Audio Output	6AQ5A	
V11	Mult.-Vert. Output	6AQ5A	
V12	Horiz. AFC-Horiz. Osc.	8CG7	
V13	Horiz. Output	17DQ6A	
V14	Damper	17AX4GT	
V15	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No	REPLACEMENT DATA: RCA Victor PART No	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No	NOTES
V16	14ATP4		14ATP4 ①		① "Silversans" ③

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	150	200	100293	PRS-400	BRRDG334	WD425	TMS-34	S-160	*R2543
C2	150	350	104325	AFH2-43-30	XA045	FP347.5	TMS-52	S-323	TVL-1642
C3A	40.00	350	104194	AFH4-56-40	D0473.3	FP346.3	TMT-193	T-537	*R2572
B	40	350				*TC88	*TD-30-150	MT-4510	
C	420	50							

* Non-catalog item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	22		104515		TCZ-22	TCO-22			NPO 5%
C5	5		104517						N750
C6	1.0		104518	NPO-81 1.0	TCZ-1	TCO-1.0		5TCCB-V1	10%
C7	5-3.5					533-A			
C8	1.5		103978						N750
C9	1000		103997	EF-001	MFT-1000			503C-DI	
C10	1000		103997	EF-001	MFT-1000			503C-DI	
C11	1000		103997	EF-001	MFT-1000			503C-DI	
C12	18		102546		TCZ-18	C19C18C	TCO-18		5%
C13	5		103571	NPO-81 5	TCZ-4R7	C19V5C	TCO-5	2T-555	5TCCB-V5	5%
C14	27		100353		TCZ-27	C19Q27C	TCO-27		5%
C15	33		103572	NPO-81 33	TCZ-33	CTA6Q33C	TCO-33	2T-5433	5TCC-Q33	NPO 10%
C16	220		100672	BPD-00023	DD-220	L19T22	RD-220	UC-5323	5GA-T22	
C17	3-.3		103553							
C18	1000		103517	EF-001	MFT-1000			503C-DI	
C19	220		100672		DE-22L	L19T22	RD-220		MS-322	10%
C20	220		100672		DE-22L	L19T22	RD-220		MS-322	10%
C21	1000		103517	EF-001	MFT-1000			503C-DI	
C22	10000		73960	BPD-01	BYA6SL	ED-01	DC51	5HK-SI	
C23	10000		73960	BPD-01	DD-103	BYA6SL	ED-01	DC51	5HK-SI	
C24	3-.3		103554							
C25	1.0		77690	NPO-81 1.0	TCZ-1.0	C19V1C	TCO-1.0	5TCCB-V1	10%
C26	1000		103517	EF-001	MFT-1000			503C-DI	
C27	270		77838		DE-27L	L7ET27	GP-270	UC-5327	5GA-T27
C28	68		71504		TCZ-68S		TCO-68		
C29	22		103534	NPO-81 22	DD-220	L19Q22	RD-22	MS-422	10%
C30	82		103580	2469-000082	TCZ-82	22R5Q82	TCO-82	MS-482	5%
C31	140-200		103519						
C32	1000		103517	EF-001	MFT-1000			503C-DI	
C33	5-3		103552						
C34	1000		77263	BPD-001	DD-103	BYA6DI	ED-1000	DC521	5HK-DI	
C35	470		78623		DE-47L	5R5T47	RD-470		MS-347	10%
C36	100		103518	EF-001	MFT-100			503C-T1	503C-DI
C37	7		103523						
C38	10		103525						10%
C39	1000		103517	EF-001	MFT-1000			503C-DI	N330 5%
C40	1.2		NPO-81 1.0	TCZ-1		TCO-1.0		5TCCB-V1	①
C41	82		77688						10%
C42	47		103559	NPO-DI 47	DD-470	L19Q47	RD-47	2T-5447	5TCC-Q47	10%
C43	1000		103517	EF-001	MFT-1000			503C-DI	
C44	1000		103517	EF-001	MFT-1000			503C-DI	
C45	1000		103517	EF-001	MFT-1000			503C-DI	
C46	15-.3								
C47	145		104332						
C48	470		77263	BPD-00047	DD-471	BYA1DT47	ED-470	UC-5347	5GA-T47	
C49	15		104309		TCZ-15		TCO-15			5% ②
C50	1000		77263	BPD-001	DD-103	BYA6DI	ED-1000	DC521	5HK-DI	
C51	470		78623	BPD-00047	DD-471	BYA1DT47	ED-470	UC-5347	5GA-T47	③
C52	1000		77263	BPD-001	DD-103	BYA6DI	ED-1000	DC521	5HK-DI	
C53	1000		78623	BPD-001	DD-103	BYA6DI	ED-1000	DC521	5HK-DI	③
C54	1000		77263	BPD-001	DD-103	BYA6DI	ED-1000	DC521	5HK-DI	
C55	1000		78623	BPD-001	DD-103	BYA6DI	ED-1000	DC521	5HK-DI	
C56	470		77473	BPD-00047	DD-471	BYA1DD47	ED-0047	UC-5347	5GA-D47	
C57	7		104177			C19V7C				
C58	5		104178	NPO-DI 5	TCZ-4R7	C19V5C	TCO-5	2T-555	5TCCB-V5	
C59	.047	200	104180	P43BN-47		BC82A47		AC82D47	5EE-S47	
C60	1000		77263	BPD-001	DD-103	BYA6DI	ED-1000	DC521	5HK-DI	
C61	.39	400	103034A							10%
C62	9		104521			C19V9C				NPO 5%
C63	.1	400	104213	P43BN-1		BC82P1		AC82E1	46E-P10	
C64	.47	200	104193	P43BN-47		CUB82A47		GEM-4047	2TM-P47	
C65	3	1000	104204							N750
C66	1000		73960	BPD-01	DD-103	BYA6SL	ED-01	DC51	5HK-SI	
C67	3300		104205			1R5D33		M8-333		10%
C68	680		104125	BPD-00068	DD-681	BYA1DT68	ED-680	UC-5368	5GA-T68	
C69	10000		73960	BPD-01	DD-103	BYA6SL	ED-01	DC51	5HK-SI	
C69	.047	200	104206	P43BN-047		CUB2A47		GEM-4147	2TM-S47	
C70	10000		73960	BPD-01	DD-103	BYA6SL	ED-01	DC51	5HK-SI	
C71	10000		73960	BPD-01	DD-103	BYA6SL	ED-01	DC51	5HK-SI	
C72	1500		104207	BPD-0015	DD-152	BYA1DD15	ED-1500	DC5215	5HK-DI5	
C73	10000		73960	BPD-01	DD-103	BYA6SL	ED-01	DC51	5HK-SI	
C74	3300	1000	104208							10% ③

PARTS LIST AND DESCRIPTIONS

CAPACITORS (cont)

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C75	033	600	104213	P68BN-033		BC8S33J		ACE133	68E-S33	
C76	10000		73960	BPD-01	DD-103	BYA6SL	ED-01	DC51	5HK-SI	
C77	47		102883	NPO-DI 47	DD-470	L10Q47	ED-47		5TCC-Q47	10%
C78	01	400	103320A					GEM-1611		10%
C79	3300		104205			1R5D33	CY30C333K		M8-333	10%
C80	0047	600	73920					GEM-16247		10%
C81	47		102882	N750-DI 47	TCN-47	C30Q47U	TCT-47	NT-5447	5TCU-Q47	N750 10%
C82	470		77283	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C83	033	600	104215							10%
C84	022	600	104216	P68BN-022	DD-303	CUB6S22	ED-01	GEM-4122	47M-S22	
C85	056	200	104221							10%
C86	022	600	104145	P68BN-022	DD-303	CUB6S22	ED-01	GEM-4122	47M-S22	
C87	1000	2000	104222							10%
C88	027	600	104220							10%
C89	015	200	104216							10%
C90	2700		104151			1R5D27	CY30C272K		M8-327	
C91	022	400	103361A	P48BN-022	DD-303	CUB4S22	ED-02	GEM-4122	47M-S22	
C92	047	200	104213	P68BN-047	DF-503	CUB8S47		GEM-4147	87M-S47	
C93	82		104214		TCZ-82	C30Q82C	TCO-82			5%
C94	023	400	104223	P48BN-023		BC84L2		ACE123	46E-S22	
C95	47	200	104193	P28BN-47		CUB2P47		GEM-4047	2TM-S47	
C96	68		104224	N750-DI 68	TCN-68	C30Q68U	TCT-68		5TCU-Q68	N750 5%
C97	01	600	104227							5%
C98	330	1000	104225							5%
C99	1000		104228	1464-001		1R5D1	ED-1000	MC8S55	M8-31	5%
C100	1000		104228	1464-001		1R5D1	ED-1000	MC8S55	M8-31	10%
C101	47	200	104193	P28BN-47		CUB2P47		GEM-4047	2TM-P47	
C102	.1	600	104211	P68BN-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C103	.1	600	104211	P68BN-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C104	1	600	104211	P68BN-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C105	039	600	73799							10%
C106	120	3500	79532							10%
C107	68	2500	104167							10%
C108	047	600	73593	P68BN-047	DF-503	CUB8S47		GEM-6147	87M-S47	③
C109	10000		73960	BPD-01	DD-103	BYA6SL	ED-01	DC51	5HK-SI	
C110	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C111	4700		73473	BPD-0047	DD-472	BYA10T47	ED-0047	UC-5247	5GA-D47	
C112	470		78623	BPD-00047	DD-471	BYA1DT47	ED-470	UC-5347	5GA-T47	
C113	10000	1000	100810	DAC-27	DD16-103	BYA10S1M		GEM-101	5L-S10	

① Some versions use 1mmf 10% (Part #77690) in this application.
② In Ch. KCS111F, H as .18mmf 5% (Part #103133) is used in this application.
③ In Ch. KCS111F, H as 1000mmf (Part #102254A) is used in this application.
④ In Ch. KCS111F, H a 470mmf (Part #78623) is used in this application
⑤ In Ch. KCS111F, H a 1000mmf 10% 1000V (Part #105776) is used in this application.
⑥ In Ch. KCS111F, H a .1mfd is used in this application.

CONTROLS

ITEM No	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	104196	S-70-S	A47-1meg-Z	Q23-137	U53	Volume
B	Shaft			Not Req.	F6-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-13	78-1	1S-38	
R2	3000Ω	½	104464	B-12		Q17-113	U9	Contrast - Note 1
R3A	1.5meg	½	104208					Vert. Hold
B	1.5meg	½						Vert. Lin.
R4A	400K	½	104202					Brightness
B	5meg	½						Height

Note 1. Alternate part #103108 used in Chassis KCS111A, B.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: RCA Victor PART No.	NOTES
R5	8200Ω		502232	
R6	6800Ω	1	502268	
R7	12K	2	512312	
R8	10K		502310	
R9	100K		502410	
R10	47Ω		502047	
R11	1meg		502510	
R12	1meg		502510	
R13	1000Ω		502210	
R14	470Ω		502147	
R15	100K		502410	
R16	100K		502410	
R17	18Ω		502018	
R18	100Ω		502110	
R19	27K 5%		502327	
R20	1000Ω		502210	
R21	100Ω		502110	
R22	3300Ω		502333	Note 1
R23	100K		502410	
R24	15Ω		502015	
R25	82K		502382	
R26	10Ω		502110	
R27	270Ω		502127	
R28	1000Ω		502210	
R29	1meg		502510	
R30	15K 5%		502315	
R31	220Ω		502122	
R32	3300Ω		502333	
R33	680Ω		502268	
R34	100K		502410	Note 3
R35	470 5%		502047	
R36	15K 5%		502315	Note 3
R37	5600Ω		502562	
R38	15K		502315	Note 4
R39	150K 5%		502415	
R40	150K 5%		502415	
R41	8200Ω	2	502282	
R42	1800 5%		502218	
R43	39000 5%		502239	
R44	1000Ω		502210	
R45	680K		502468	
R46	18K		502318	
R47	68K		502368	
R48	4300Ω	5	104201	
R49	330Ω		502133	

ITEM No.	RATING: OHMS	RATING: WATT	RCA Victor PART No.	NOTES
R50	56K	1	513356	
R51	3300Ω	2	502333	
R53	68K	2	512368	
R53	150K		503415	
R54	220K		502422	
R55	22K		502322	
R56	270K		502427	
R57	10K	1	512310	
R58	1000Ω		502210	
R59	22Ω		502022	
R60	100K		502410	
R61	560K		502456	
R62	330K		502433	
R63	470K		502447	
R64	18K	2	512318	
R65	560Ω		502256	
R66	2200Ω	2	512222	
R67	680Ω	1	512168	
R68	33K		502333	
R69	680K		502468	
R70	18K		502318	
R71	1meg		502510	
R72	33K	2	512333	
R73	150K		502415	
R74	22K		502322	
R75	22K	1	512322	
R76	5600Ω		502256	
R77	1.5meg		502568	
R78	18K		502318	
R79	1.5meg		502515	
R80	270K		502427	
R81	22K		502322	
R82	33K		502333	
R83	330K		502433	
R84	18K 5%		502318	
R85	10K		502310	
R86	1.5meg		502515	
R87	18K 5%	1	513318	
R88	150Ω	1	512115	
R89	150Ω		502115	
R90	150Ω		502115	
R91	1.2meg		502512	
R92	56K	1	512356	
R93	82K 5%		502382	
R94	150K 5%		502415	

RESISTORS (cont)

ITEM No.	RATING: OHMS	RATING: WATT	RCA Victor PART No.	NOTES
R95	39000	1	502239	
R96	100K 5%	1	512410	
R97	47K		502347	
R98	330K		502433	
R99	47Ω		502047	
R100	1meg		502510	
R101	1meg		502510	
R102	10meg		502610	
R103	18K	2	522318	Note 7
R104	27Ω	1	104389	
R105	68K		502368	
R106	10000Ω		502210	
R107	3 9Ω		103030	
R108	5 6Ω	5	100017	
R109	18Ω	7	104390	Note 8
R110	470K		502447	

Note 1. Some versions use a 3900Ω (Part #502239) in this application.
Note 2. Chassis KCS111F, H use a 62K (Part #502368) in this application.
Note 3. Chassis KCS111F, H use a 47K (Part #502347) in this application.
Note 4. Chassis KCS111F, H use a 56000 (Part #502256) in this application.
Note 5. Some versions may use 27K 2W (Part #522327) in this application.
Note 6. Not used in some versions
Note 7. Chassis KCS111A, B use a 22K 2W (Part #522322) in this application.
Note 8. Chassis KCS111A, B use a 390 5W (Part #104301) in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	Vert. Output	104162	Z1807 ①			VO-103	26879 ②	A-115Z	
T2A	Yoke-Horiz. (3.6MH)	104369 ③		MDF-119		DY-34A ⑤		DY-47 & NW23 ④	
B	(90°)-Vert. (11.3MH)								
M8	Rear Cover & Centering Device	104368							
T3	Horiz. Output	103082				HO-372*	FLY-100 *		
T4	Width Coil (2-17MH)	103104	RF800 ⑤ ⑥	MWC-11	20LR16	WC-11 ⑤ ⑥	WC-18 ⑤	WLC-6	

① Cut and tape blanking lead.
② Use 15 to 1 turns ratio. Connect as autoformer.
③ Includes capacitor (C107) and resistors (R85, R90, R106).
④ Use original rear cover and centering device.
⑤ Use terminals #1 and #2.
⑥ Enlarge mounting hole.
⑦ Use black and white terminals.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
5				5	5	
4				4	4	
3				3	3	
2				2	2	
1				1	1	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	7500Ω	3-4Ω	104193	Z1113	A-2931	AU-802	A-3878	24S53	S-7X	

SPEAKER

ITEM No.	TYPE: SIZE	TYPE: FIELD	TYPE: V. C. IMP.	REPLACEMENT DATA: RCA Victor PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	104478 ①	4A07	① Used in Models 14PT8031, U, 8032, U, 14PD8053, U, 8054, U, 8055, U, 8057, U
	6½"	PM		105713 ②		② Used in Models 14VT8165, U, 8167, U

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L1	Ant. Trans. Assy.	108525	Includes traps
L2	Ant. Coils	103564	Channel 2-13, Includes C16, C25 & stator assy.
L3	Neut. Coil	78562	
L4	RF Coils	103550	Channel 2-13, Includes C28, C30, R13, R14 & stator assy.

ITEM No.	USE	RCA Victor PART No.	NOTES
L5	Mixer Grid Coils	103551	Channel 2-13, Includes C27 & stator assy.
L6	Osc. Coils	103549	Channel 2-13, Includes C26, C41, C42 & stator assy.
L7	UHF IF Trans.	103868	
L8	Mixer Plate (Trans.	104444	

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L9	47.25MC Trap	104141					
L10	RF Choke						
L11	1st. Video IF	104232					
L12	2nd. Video IF	104233					
L13	3rd. Video IF	104353					
L14	4th. Video IF	104233					
L15	RF Choke						
L16	Series Peaking Coil	103819	19-3036	TV-180	6176	VP-1	36 Microhenries
L17	Shunt Peaking Coil	104230	19-3300	TV-199	6155	VP-4	300 Microhenries, Note 1
L18	Series Peaking Coil	104229	19-3135	TV-196	6153		120 Microhenries, Note 2
L19	Shunt Peaking Coil	104230	19-3300	TV-199	6155		300 Microhenries
L20	1st. Sound IF	104235					Includes Cap.
L21	2nd. Sound IF	104237					Includes Cap.
L22	Quadrature Coil	104234					Includes Cap. & Resistor, Note 3
L23	Fil. Choke	72477	19-4215	BC-537	4609		5.4 Microhenries

Note 1. Part #104238 (390 Microhenries) used in Ch. KCS111A, B.
Note 2. Part #105456 used in Ch. KCS111F, H.
Note 3. Part #105795 used in Ch. KCS111F, H.

RCA VICTOR MODELS 14PD8053, U, 14PD8054, U, 14PD8055, U, 14PD8057, U, 14PT8021, U, 14PT8022, U, 14VT8135, U, 14VT8157, U. (Ch. KCS111A, B, C, D, E, F, H, KR523A)

FOLDER 3

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	
L24	75Ω*		103570		TV-165			HS-7	Horiz. Freq. 16-80 Millihenries * Tapped ③ 55Ω
L25	48Ω		102195						Horiz. Waveform

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L26	.260A	37Ω	1.1 Hy.	102638	C5037 ①	C-2991 ①		C-2326 ①	26C41	C-24X

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	RCA Victor PART No.	REPLACEMENT DATA	
K1	VHF Antenna Isolation	470mmf, .3-1meg	104328	Centralab Sprague	RC-471 R-9177
K2	VHF Antenna Isolation	470mmf, .3-1meg	140328	Centralab Sprague	RC-471 R-9177
K3	UHF Antenna Isolation	470mmf, .3-1meg	104328	Centralab Sprague	RC-471 R-9177
K4	UHF Antenna Isolation	470mmf, .3-1meg	104328	Centralab Sprague	RC-471 R-9177
K5	AGC	1.2meg, 82K, 820K, 220K, 680K	104331		
K6	Sound IF Grid	56mmf 10%, 47K	104329	Centralab	RC-421
K7	Speaker Isolation	470mmf, .3-1meg	104328	Centralab Sprague	RC-471 R-9177
K8	Sync Coupling	330mmf, 330mmf, 2.2meg, 560K, 270K	104332		

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	RCA Victor PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.240A	100035 ①	1090A ①	1N1007 ②	RS300SL ① SD94A ③	300 ① M500 ③	① Selenium type. ② Germanium type. ③ Silicon type.
M2	.240A	100035 ①	1090A ①	1N1007 ②	RS300SL ① SD94A ③	300 ① M500 ③	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			RCA Victor PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	C	3/10A 250V	102164	102162	332.300 (C-3/10A-250V)	346001	C 3/10	HC 0 to 3/10

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		RCA Victor PART No.	CBS PART No.	SYLVANIA PART No.	
M4	1N82A *	104001	1N82A	1N82A	UHF Mixer (Clip-in)
M5		76675A	1N60	1N60	Video Det. (Pigtail)

* A K3D may be used in some versions.

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M6	Tuner	KRK47B	VHF - Ch. KCS111D
M7	Tuner	KRK64F	UHF - Ch. KCS111D, B, H
	Tuner	KRH44A	VHF - Ch. KCS111A
	Tuner	KRK45A	VHF - Ch. KCS111B
	Tuner	KRK46B	VHF - Ch. KCS111C
	Tuner	KRK46N	VHF - Ch. KCS111F
	Tuner	KRK47N	VHF - Ch. KCS111H
M8	Centering Device	104368	Includes yoke cover

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	104365	Models 14PT8021, U, 8022, 14PD8053, U, 8054, U, 8055, U, 8057, U
Safety Glass	105696	Models 14VT8155, U, 14VT8157, U
Mask	104340	Models 14PT8021, U, 8022, 14PD8053, U, 8054, U, 8055, U, 8057, U
Mask	105697	Models 14VT8155, U, 8157, U
Knob	105699	TV-Phono-Tone
Knob	104347	VHF Channel Selector - Model 14PD8053U
Knob	104344	VHF Channel Selector - Model 14PD8053
Knob	104345	VHF Channel Selector - Models 14PD8054, 8057, 14PT8021, 14VT8157
Knob	104343	VHF Channel Selector - Models 14PD8055, 14PT8022, 14VT8155
Knob	104348	VHF Channel Selector - Models 14PD8054U, 8057U, 14PT8021U, 14VT8157U
Knob	104346	VHF Channel Selector - Models 14PD8055U, 14PT8022U, 14VT8155U
Knob	104352	UHF Channel Selector - Model 14PD8053U
Knob	103068	UHF Channel Selector - Models 14PD8054U, 8057U, 14PT8021U, 14VT8157U
Knob	103069	UHF Channel Selector - Models 14PD8055U, 14PT8022U, 14VT8155U

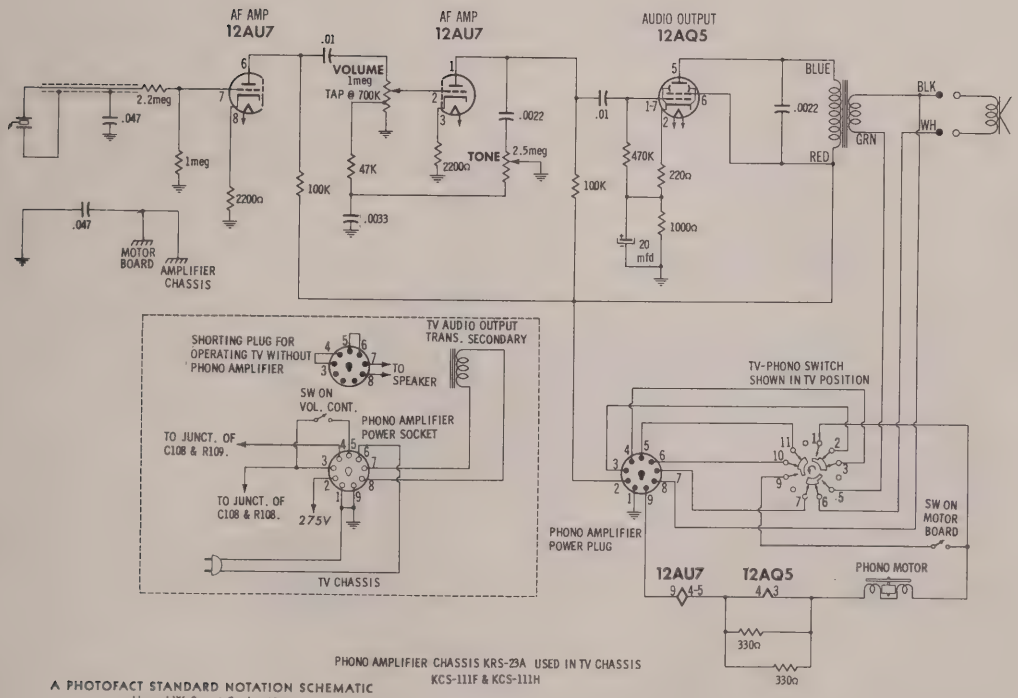
PARTS LIST AND DESCRIPTIONS (Continued)

CABINETS & CABINET PARTS (cont)

NAME	PART NO.	DESCRIPTION
Knob	104350	Fine Tuning - Models 14PD8053, U
Knob	104351	Fine Tuning - Models 14PD8054, U, 8057, U, 14PT8021, U, 14VT8157, U
Knob	104349	Fine Tuning - Models 14PD8055, U, 14PT8022, U, 14VT8155, U
Knob	104342	On-off-volume & contrast - Models 14PD8053, U
Knob	103077	On-off-volume & contrast - Models 14PD8054, U, 8057, U, 14PT8021, U, 14VT8157, U
Knob	103078	On-off-volume & contrast - Models 14PD8055, U, 14PT8022, U, 14VT8155, U
Dial	104353	UHF - Model 14PD8053U
Dial	103072	UHF - Models 14PD8054U, 8057U, 14PT8021U
Dial	103073	UHF - Models 14PD8055U, 14PT8022U
Handle	104355	Models 14PD8053, U, 8055, U
Handle	104356	Models 14PD8054, U, 8057, U
Handle	104372	Models 14PT8021, U
Handle	104967	Models 14PT8022, U
Cabinet	Z4168	Models 14PD8053, U
Cabinet	Z4169	Models 14PD8054, U
Cabinet	Z4170	Models 14PD8055, U
Cabinet	Z4171	Models 14PD8057, U
Cabinet	Z4199	Models 14PT8021, U
Cabinet	Z4172	Models 14PT8022, U
Cabinet	M4307	Models 14VT8155, U
Cabinet	M4300	Models 14VT8157, U

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

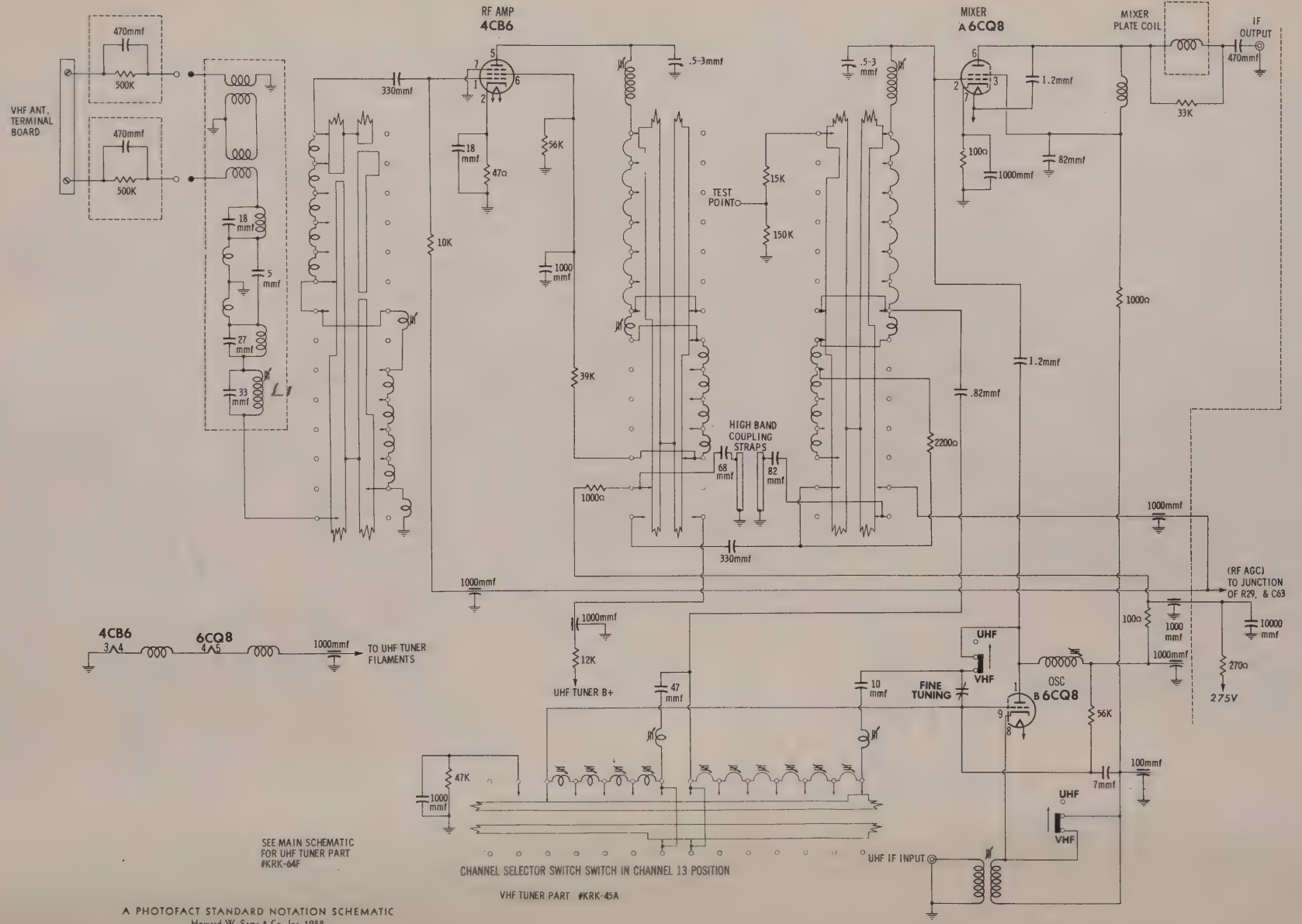


PHONO AMPLIFIER CHASSIS KRS-23A USED IN TV CHASSIS KCS-111F & KCS-111H

A PHOTOFACT STANDARD NOTATION SCHEMATIC

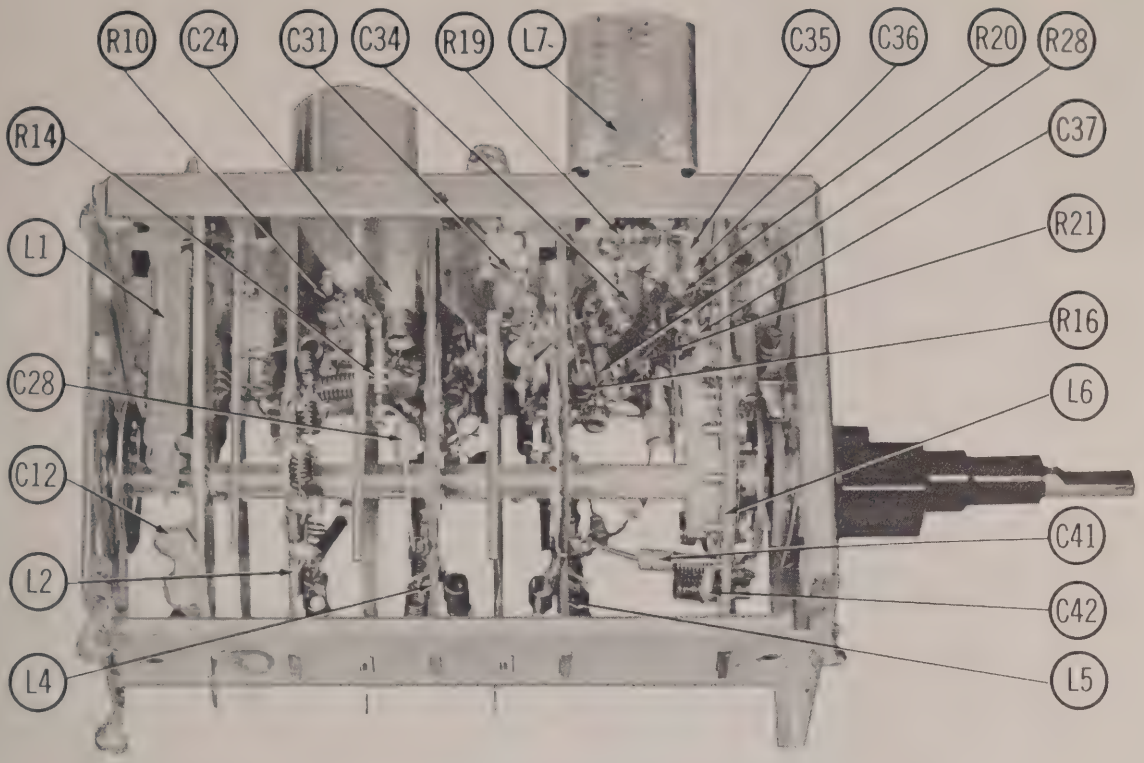
Howard W. Sams & Co., Inc. 1958

AMPLIFER SCHEMATIC

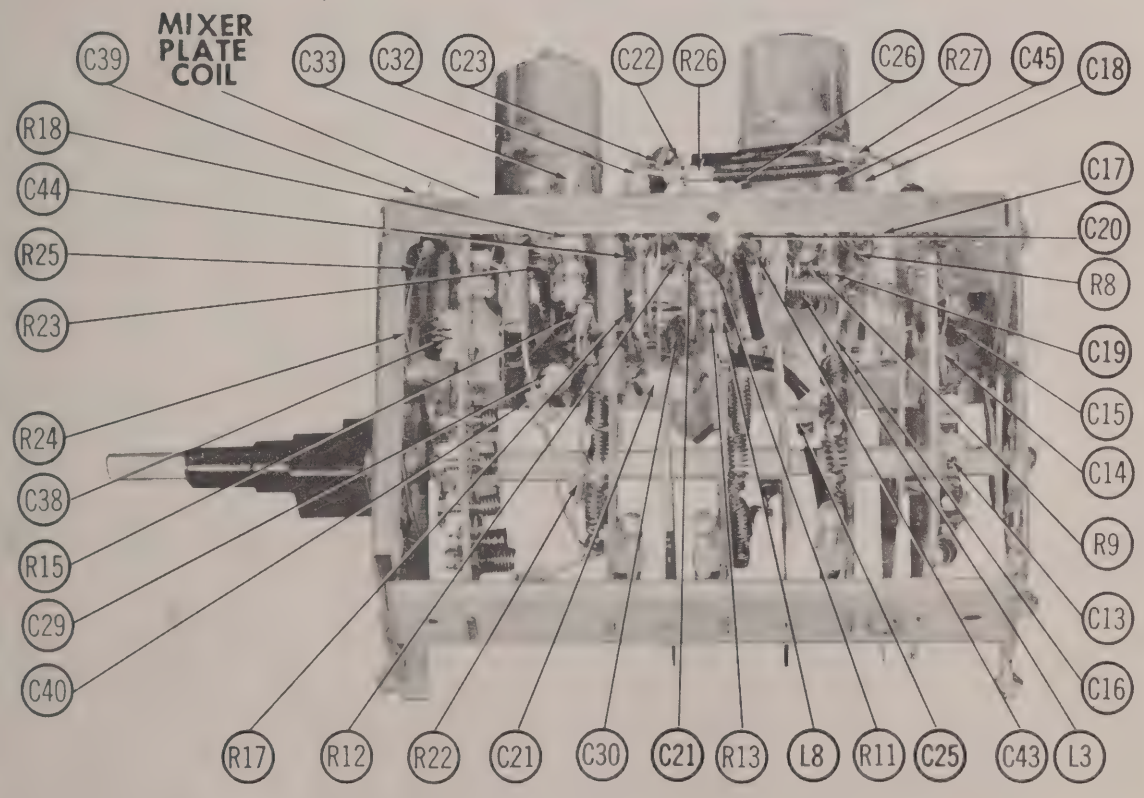


A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ALTERNATE UHF-VHF TUNER SCHEMATIC

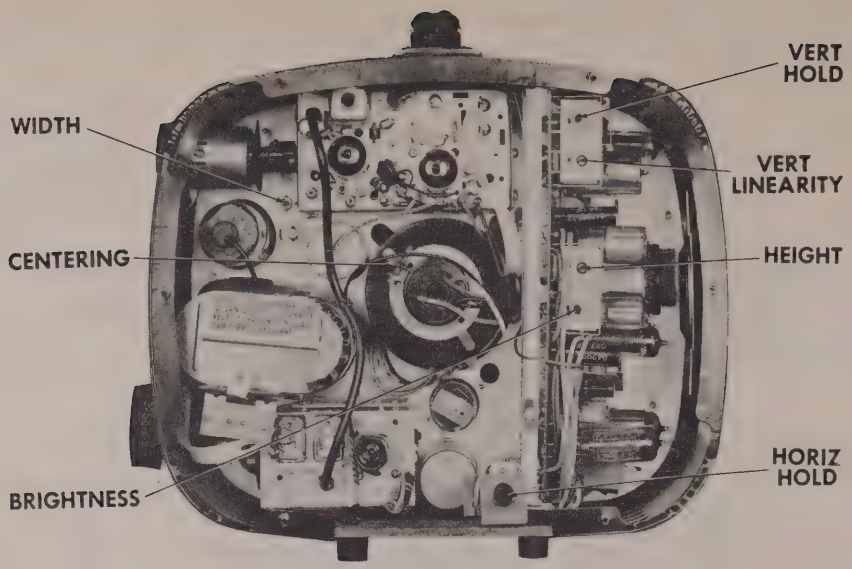


RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE

FOLDER 3



CABINET–REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a short clip lead across the horizontal waveform coil (L25) and adjust the horizontal hold until the picture pulls into sync. Remove the clip lead.

Connect the vertical amplifier of a scope thru a low capacity probe to point Ⓔ. Low side to chassis. Turn the horizontal hold clockwise until the picture falls out of sync, then counter clockwise until the picture just pulls into sync. Adjust the horizontal waveform slug (B1) until the waveform on the scope appears similar to that shown in Fig. 7 with peaks of equal amplitudes. If necessary during this adjustment, keep the picture in sync with the horizontal hold. Remove the scope connections.

Turn the horizontal hold until the picture falls out of sync with the diagonal lines sloping down to the left. Slowly turn the horizontal hold counter clockwise and note the number of diagonal bars obtained just before the picture falls into sync. Pull-in should occur with one and one-half to three bars present.

Set the brightness and contrast controls to normal and adjust the width slug (B2) for a picture SLIGHTLY wider than necessary to fill the picture mask horizontally.

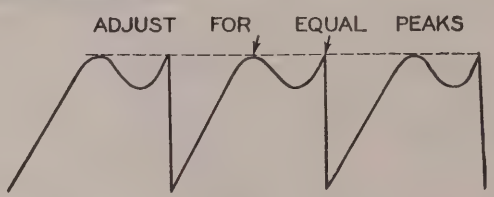
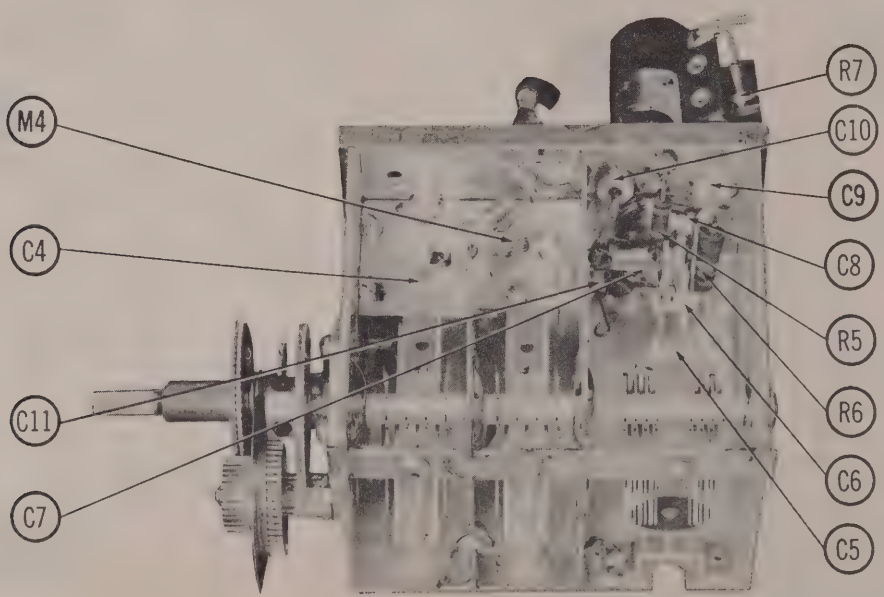


FIG. 7



UHF TUNER–SIDE VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 9 push-on type knobs from the front.
2. Remove 12 wood screws from the rear cover. Remove the rear cover.
3. Remove 2 screws holding the cabinet top closed. Raise top.
4. Remove 2 wood screws holding the antenna terminal board.
5. Remove the picture tube socket, yoke plug, HV lead, radio antenna, and speaker leads.
6. Remove 2 chassis bolts from the bottom.
7. Remove chassis.

MODEL 58R(CH.158RP)

TRADE NAME	Setchell-Carlson	MODELS	CHASSIS
		58, 581, 5800, 5801	158
		58R, 582, 583, 5800R, 5802, 5803	158R
MANUFACTURER	Setchell-Carlson Inc., New Brighton, Minn.		
TYPE SET	Combination Television Receiver and AM Radio		
TUBES	TV - Nineteen, Radio - Three		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING	TV 135 Watts, 1.2 Amp. @ 117 Volts AC Radio 43 Watts, .44 Amp. @ 117 Volts AC
TUNING RANGE	TV Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier) Radio 535KC-1600KC, IF 456KC		

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. One slug for HIGH band adjustment is located at 1 o'clock, and should be adjusted first. The LOW band adjustment is located at 6 o'clock. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 4 screws from the trim strip at the top of the safety glass. Tilt glass out at the top and lift up to remove.

SERVICE ADJUSTMENT LOCATION

The horizontal hold, vertical hold and brightness controls are located behind the on-off-volume knob.

FOCUS

The focus may be varied by means of a focus control. (For location, see tube placement chart).

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (A12) located on top of chassis.

FUSES

One fuse is used for LV power supply protection. (For location, see tube placement chart.)

CENTERING

Centering is accomplished electrically. Adjust the horizontal centering control until the picture is properly centered. (For location, see tube placement chart.)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

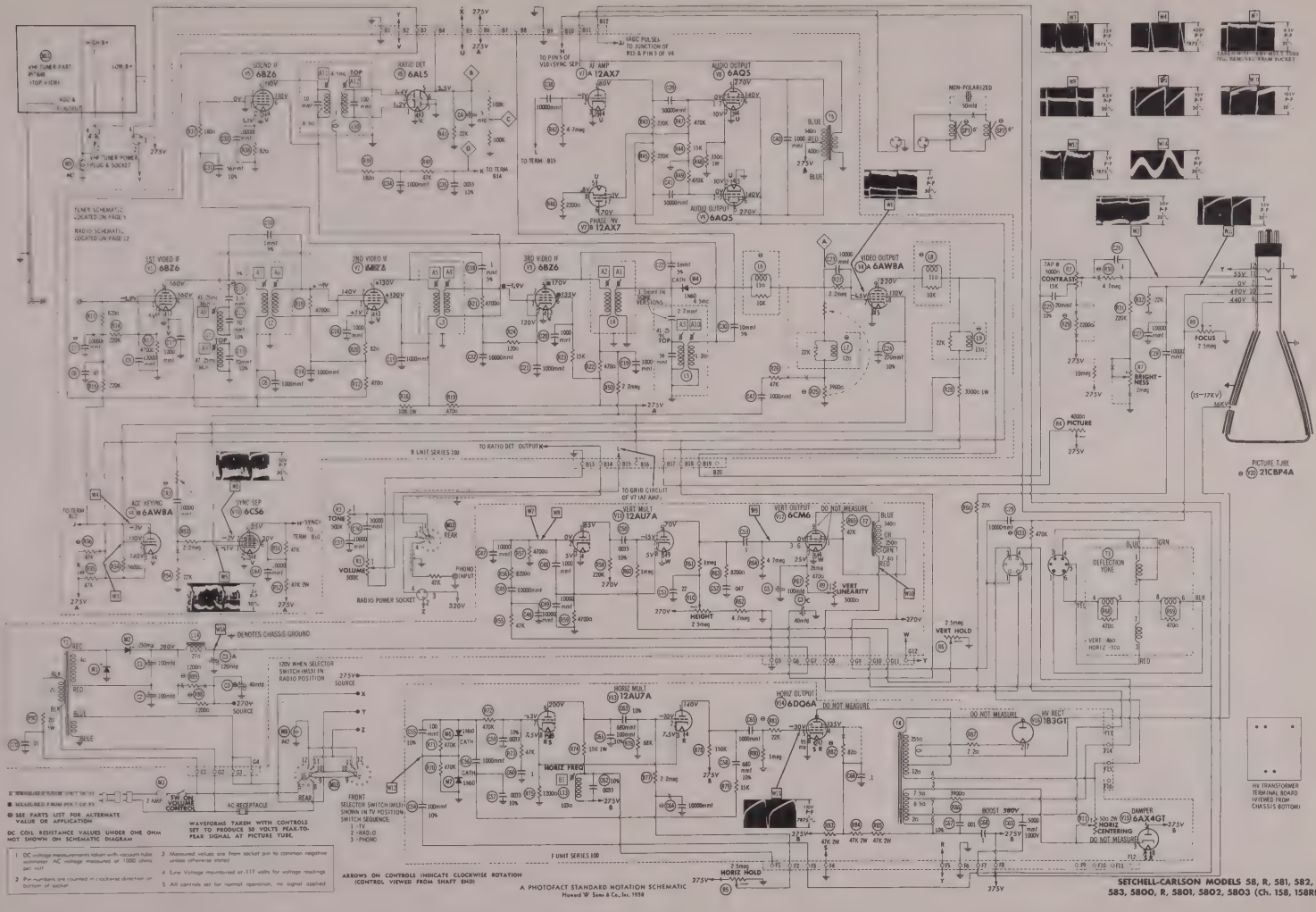
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H425

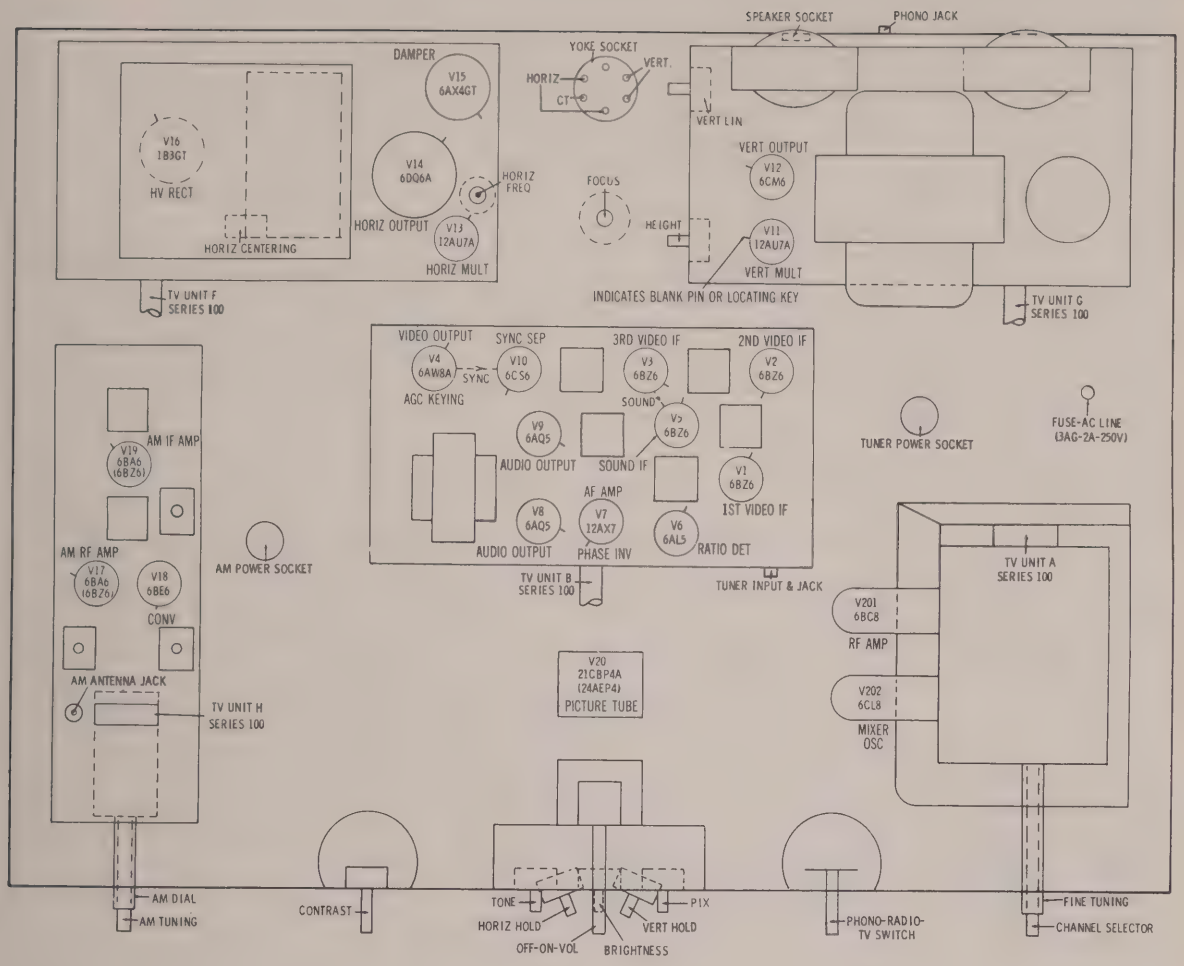
SETCHELL-CARLSON MODELS 58, R, 581, 582, 583, 5800, R, 5801, 5802, 5803 (Ch. 158, 158RP)

SETCHELL-CARLSON MODELS 58, R, 581, 582, 583, 5800, R, 5801, 5802, 5803 (Ch. 158, 158RP)

SET 396 FOLDER 4


SETCHELL-CARLSON MODELS 58, R, 581, 582, 583, 5800, R, 5801, 5802, 5803 (Ch. 158, 158RP)
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
DENOTES CHASSIS GROUND
AC RECEPTACLE
SW ON VOLUME CONTROL
FRONT
REAR
RADIO POWER SOCKET
PHONO INPUT
TONE
VOLUME
SYNC SEP
AGC KEYING
VERT MULT
VERT OUTPUT
HORIZ MULT
HORIZ OUTPUT
HV RECT
DAMPER
BOOST 390V
HORIZ CENTERING
DEFLECTION YOKE
PICTURE TUBE
CONTRAST
BRIGHTNESS
FOCUS
PICTURE
VERT HOLD
HORIZ HOLD
HORIZ FREQ
VERT LINEARITY
HEIGHT
1ST VIDEO IF
2ND VIDEO IF
3RD VIDEO IF
VIDEO OUTPUT
SOUND IF
RATIO DET
AUDIO OUTPUT
PHASE INV
1ST AMP
2ND AMP
HV TUNER PART
VHF TUNER POWER PLUG & SOCKET
TUNER SCHEMATIC LOCATED ON PAGE 9
RADIO SCHEMATIC LOCATED ON PAGE 12
TO RATIO DET. OUTPUT
TO GRID CIRCUIT OF V7 1ST AMP
AGC PULSES TO JUNCTION OF R85 & PIN 5 OF V4
TO PINS 7 OF V10 SYNC SEP
TO TERM B15
TO TERM B14
TO TERM B16
H SYNC TO TERM B16
B UNIT SERIES 100
F UNIT SERIES 100
DO NOT MEASURE
NON-POLARIZED
6BZ6
6AM6
6AW8A
6CS6
12AU7A
6CM6
6DQ6A
1B3GT
6AX4GT
6AQ5
12AX7
21CBP4A

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **Fuse (M3), Rectifier (M1, M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V1, V2, V3, Diode (M4), V4**
No pic, no sound, has snow - **V201, V202, V1**
No pic, has sound, has raster - **V4, V20**
Has pic, no sound - **V5, V6, V7, V8, V9**
Overloaded picture - **V4**

SYNC FAILURE
No vert. sync - **V10**
No horiz. sync - **V10, Diode (M6, M7)**
No vert. or horiz. sync - **V10**

SWEEP FAILURE
No raster, has sound - **M6, M7, V13, V14, V15, V16, V20**
No vertical deflection - **V11, V12**
Poor vert. linearity or foldover - **V11, V12**
Poor horiz. linearity or foldover - **V13, V14, V15**
Narrow picture - **V13, V14, V15**
Vert. off freq. - **V11**
Horiz. off freq. - **V13**

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Remove the mixer-osc. tube (V202) from its socket to disable the local oscillator and reduce the possibilities of erroneous indications.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.001mfd	High side to pin 1 (grid) of 6BZ6 (V3). Low side to chassis.	44.0MC (10MC Swp)	41.25MC 45.75MC	Any non-interfering channel	Vert. Amp. thru 10K to point (A). Low side to chassis. (Across video det. load).	A1, A2, A3	Adjust A1 and A2 for response curve similar to Fig. 1 with 45.75MC marker as shown. Adjust A3 to place 41.25MC marker in trap notch.
2.	"	High side to pin 1 (grid) of 6BZ6 (V2). Low side to chassis.	"	"	"	"	A4, A5	Adjust for maximum gain and symmetry of response similar to Fig. 2 with markers as shown.
3.	"	High side to pin 1 (grid) of 6BZ6 (V1). Low side to chassis.	"	41.25MC 45.75MC 47.25MC	"	"	A6, A7, A8, A9	Adjust A6 and A7 for response similar to Fig. 3. Adjust A8 to place 41.25MC marker in trap notch. Adjust A9 to place 47.25MC marker in trap notch.
4.	Direct	Replace V202 in its socket. Place a thin insulated metal strip between the mixer-osc. tube (V202) and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	"	"	"	Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 3 with markers as shown. If necessary, retouch A1, A2 and A4 thru A7 for correct response.

SOUND IF ALIGNMENT

Connect two matched 100K (±1%) resistors in series from point (B) to chassis. The junction of these two resistors is alignment point (C) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.001mfd	High side to point (A). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point (B). Common to chassis.	A10, A11	Adjust for maximum deflection.
6.	"	"	"	"	DC probe to point (D). Common to point (C).	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

RADIO ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7.	.05mfd	High side to pin 7 (grid) of 6BE6 (V18). Low side to chassis.	456KC (400∿ Mod)	Radio	Tuning gang fully open	Across voice coil	A13, A14, A15, A16	Adjust for maximum deflection.
8.		Loop	1600KC (400∿ Mod)	"	1600KC	"	A17, A18, A19	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
9.		"	600KC (400∿ Mod)	"	600KC	"	A20, A21, A22	Adjust for maximum deflection. Repeat steps 2 and 3.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGE 6.

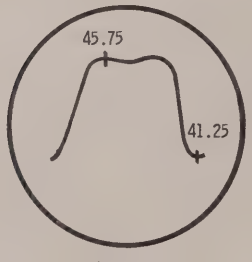


FIG.1

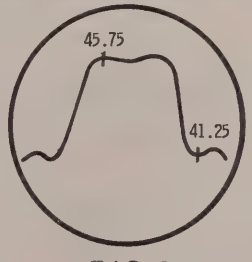


FIG.2

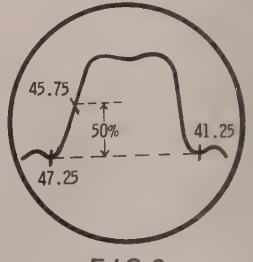
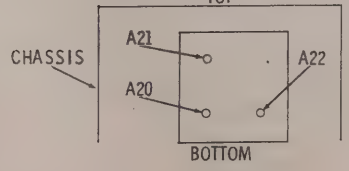
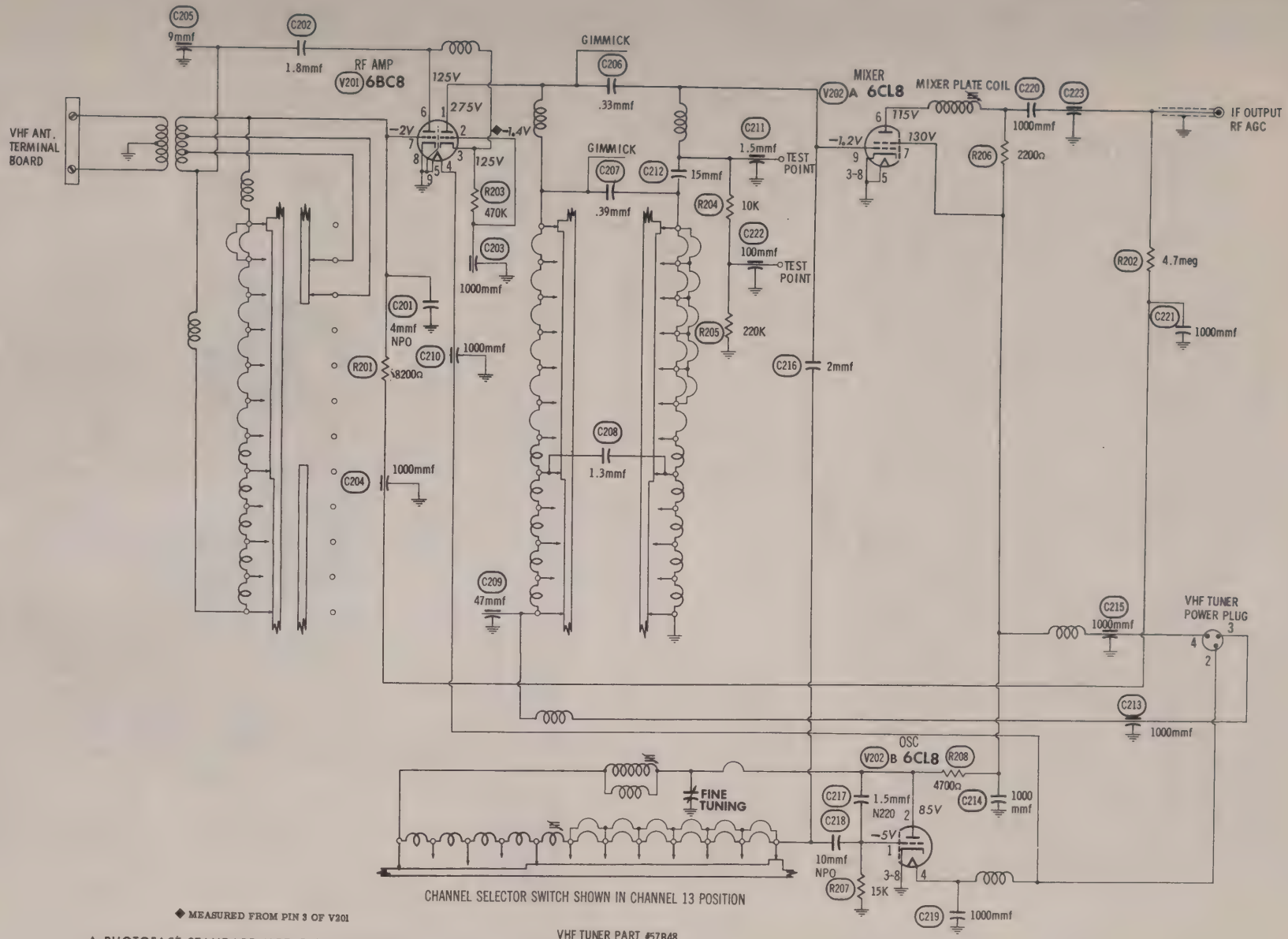


FIG.3

REAR VIEW OF SLUG TUNING ASSY





TUNER SCHEMATIC

SET 396 FOLDER 4

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amplifier	6BC8	
V202	Mixer-Osc.	6CL8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Setchell-Carlson PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C201	4					C10V4C				NPO
C202	1.8									
C203	1000			EF-001	MFT-1000				503C-D1	
C204	1000			EF-001	MFT-1000				503C-D1	
C205	9									
C206	.33									
C207	.39									
C208	1.3									
C209	47									
C210	1000			EF-001	MFT-1000				503C-D1	
C211	1.5									
C212	15			BPD-000015	DD-150	L10Q15	ED-15	UC-5415	5GA-Q15	
C213	1000			EF-001	MFT-1000				503C-D1	
C214	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C215	1000			EF-001	MFT-1000				503C-D1	
C216	2					C10V2C				
C217	1.5									N220
C218	10			NPO-SI 10	TCZ-10	CTA6Q1C	TCO-10	ZT-541	5TCC-Q1	NPO
C219	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C220	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C221	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C222	100			EF-0001	MFT-100				503C-T1	
C223										

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	Setchell-Carlson PART No.	NOTES
R201	8200Ω			
R202	4.7meg			
R203	470K			
R204	10K			
R205	220K			
R206	2200Ω			
R207	15K			
R208	4700Ω			

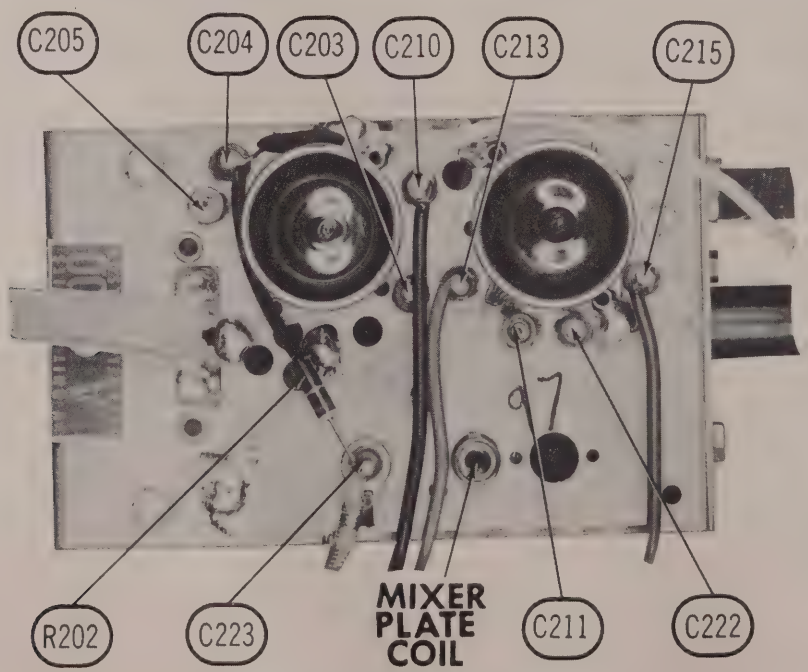
TUNER ALIGNMENT INSTRUCTIONS

OSCILLATOR ALIGNMENT

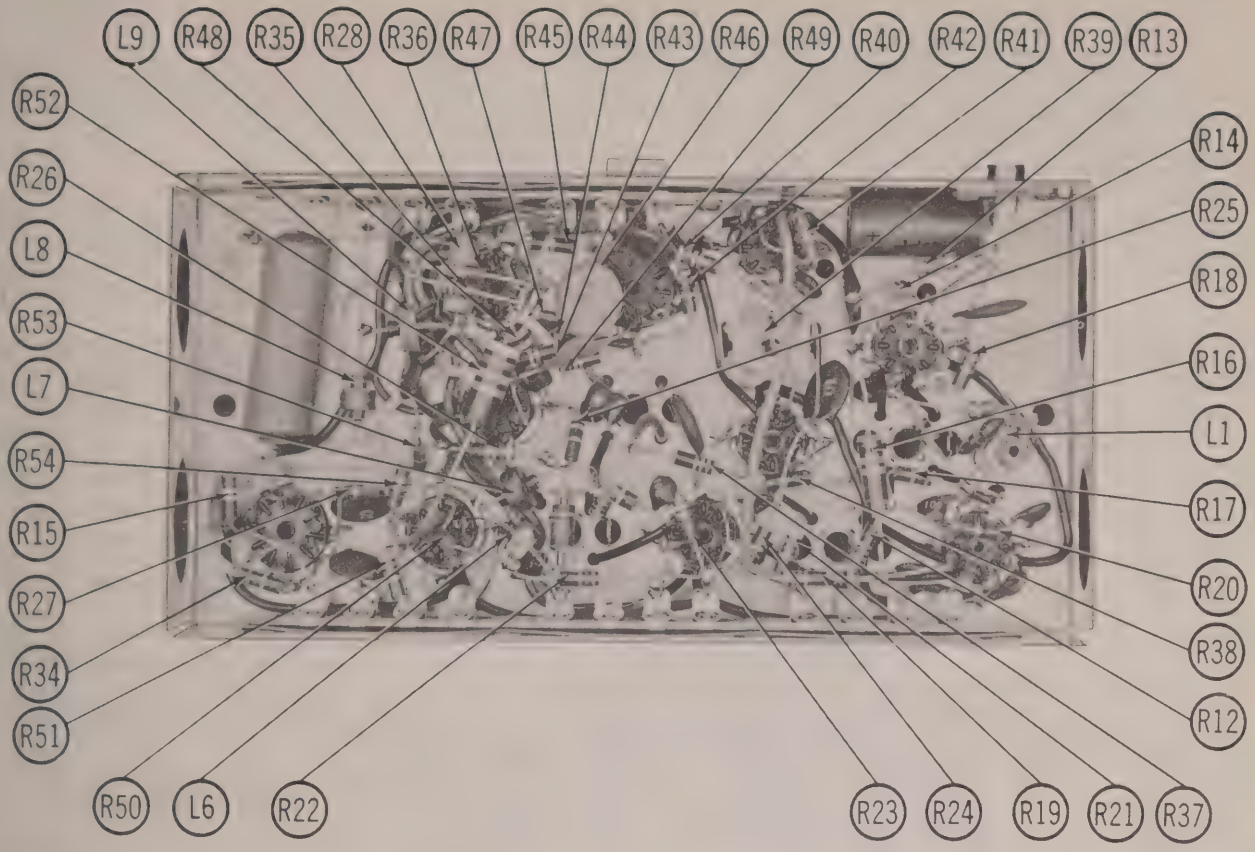
Set the fine tuning at the center of its range. One slug for HIGH band adjustment is located at 1 o' clock, and should be adjusted first. The LOW band adjustment is located at 6 o'clock. Adjust for best picture and sound.

RF AND MIXER ALIGNMENT

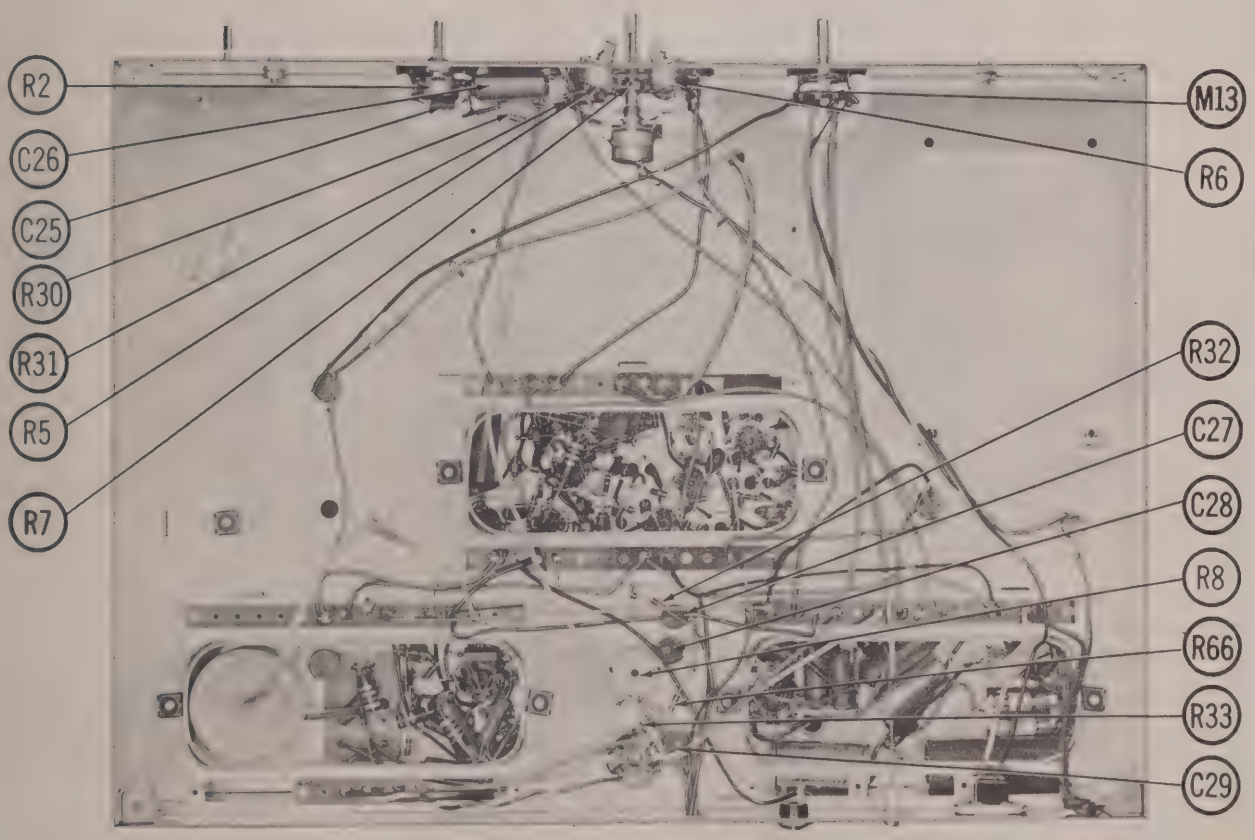
This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.



RF TUNER—TOP VIEW



IF SUB CHASSIS - RESISTOR, INDUCTOR IDENTIFICATION



CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp	6BZ8	
V2	2nd Video IF Amp	6BZ6	
V3	3rd Video IF Amp	6BZ8	
V4	Video Output-AGC-Keying	6AW8A	
V5	Sound IF Amp	6BZ6	
V6	Ratio Det	6AL5	
V7	AF Amp -Phase Inv	12AX7	
V8	Audio Output	6AQ5	
V9	Audio Output	6AQ5	
V10	Sync Sep	6CS6	
V11	Vert. Mult.	12AU7A	
V12	Vert Output	6CM6	
V13	Horiz Mult	12AU7A	
V14	Horiz Output	5DQ8A	
V15	Damper	6AX4GT	
V16	HV Rectifier	1B3GT	
V17	AM RF Amp	6BA6	*6BZ6
V18	Converter	6BE6	
V19	AM IF Amp	6BA6	*6BZ6

* Alternate

PICTURE TUBE

ITEM No	REPLACEMENT DATA: Setchell-Carlson Part No	GENERAL ELECTRIC Part No	RCA Part No	SYLVANIA Part No	NOTES
V20	21CBP4A		21CBP4-A ①	21CBP4	① "Silverama" ③
				21CBP4A②	② "Silver Screen 85"
	24AEP4		24AEP4 ①	24AEP4 ②	

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP	VOLT	Setchell-Carlson Part No	AEROVOX Part No	CORNELL-DUBILIER Part No	MALLORY Part No	PYRAMID Part No	SANGAMO Part No	SPRAGUE Part No
C1	100	200		PRS250V100	BBR10Y225			MT-25100	*PR250
C2	100	200		PRS250V100	BBR07Y225			MT-25100	*PR250
C3 A	220	350	C-101	AFH3-39-95	C20044	FP239.5 C-Q132		MT-4540	*PR3547
B	440	350			TC78	TC78		TM-4540	
C	40	350							
C4	5	50		PR50V5	BBR5-50	TC30	TD-5-50	MT-0505	TVA-1302
C5	100	50		PR50V100	BR1005	TC350	TD-100-50	MTH-5010	TVA-1310

* Non-catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP	VOLT	Setchell-Carlson Part No	AEROVOX Part No	CENTRALAB Part No	CORNELL DUBILIER Part No	ERIE Part No	MALLORY Part No	SPRAGUE Part No	NOTES
C6	47	200		PZ58N-47		CUB2P47		GEM-2047	47M-P47	
C7	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	①
C8	1000			BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C9	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C10	1		C-103							5%
C11	1.5		C-107							5% ①
C12	70			1469-00007		22R5Q7			MS-47	10%
C13	70			1469-00007		22R5Q7			MS-47	10%
C14	1000			BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C15	1000			BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C16	1000			BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C17	1000			BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C18	1		C-103							5%
C19	1000			BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C20	1000			BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C21	1000			BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C22	1		C-103							5%
C23	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C24	270			1469-00027	TCZ-270	SR5T27	GP-270		MS-33T	10%
C25	20			1469-00002	TCZ-20	22R5Q2	GP-20		MS-42	10%
C26	1	400		PZ58N-1		CUB4P1		GEM-401	47M-P1	
C27	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C28	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C29	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C30	10		C-110	NPO-S1 10	TCZ-10		TCO-10			5%
C31	56			1469-00005	TCZ-56	22R5Q56	GP-56		MS-456	10%
C32	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C33	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C34	1000			BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C35	0033	400						GEM-16333		10%
C36	30000			BPD-03	DF-303	BYB6S3			5HK-S3	
C37	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C38	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C39	30000			BPD-03	DF-303	BYB6S3			5HK-S3	
C40	1000			BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C41	30000			BPD-03	DF-303	BYB6S3			5HK-S3	
C42	1000			BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C43	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	③
C44	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C45	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C46	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C47	1000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C48	1000			BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C49	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	
C50	0033	400						GEM-16333		10%
C51	22	400		PZ58N-22		CUB4P22		GEM-4022	47M-P22	
C52	047	400		PZ58N-047	DF-805	CUB4S47		GEM-4047	47M-S47	
C53	1	400		PZ58N-1	DF-104	CUB4P1		GEM-401	47M-P1	
C54	100			1469-0001	TCZ-100	22R5T1	GP-100	MCB235	MS-31	10%
C55	100			1469-0001	TCZ-100	22R5T1	GP-100	MCB235	MS-31	10%
C56	1000			BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C57	0033	400						GEM-16333		10%
C58	680			1469-00068		1R5T68	GP-680		MS-268	10%
C59	0033	400						GEM-16333		10%
C60	1	400		PZ58N-1	DF-104	CUB4P1		GEM-401	47M-P1	
C61	100			1469-0001	TCZ-100	22R5T1	GP-100	MCB235	MS-31	10%
C62	0033	400						GEM-16333		10%
C63	680			1469-00068		1R5T68	GP-680		MS-268	10%
C64	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	①
C65	1000			BPD-001	DD-103	BYA10D1M	ED-1000	DC521	5HK-D1	
C66	1	400		PZ58N-1	DF-104	CUB4P1		GEM-401	47M-P1	
C67	001	400								10%
C68	1	400		PZ58N-1	DF-104	CUB4P1		GEM-401	47M-P1	
C69	5000	1000			DD-502	BYA10R			5GA-D5	
C70	.01	400		PZ58N-01	DS-103	CUB4S1	GP-10000	GEM-41	47M-S1	
C71	1000			BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C72	100			1469-0001	TCZ-100	22R5T1	GP-100	MCB235	MS-31	10%
C73										
C74	56			1469-00056	DS-580	5W5Q56	GP-56	MCL-456	1FM-456	③
C75	10000			BPD-01	DD-103	BYA10E1	ED-01	DC511	5HK-S1	③
C76										

CAPACITORS (cont)

ITEM No.	RATING: CAP	VOLT	Setchell-Carlson Part No	REPLACEMENT DATA: AEROVOX Part No.	CENTRALAB Part No.	CLAROSTAT Part No.	CORNELL-DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
C77	.047	400		P488N-047	DF-503	CUB4S47			GEM-4147	47M-S47	
C78	8 8		C-109								③④
C79	30000			BPD-03	DF-303	BYB6S3				5HK-S3	
C80	56			1469-000056	TCZ-56	22R5Q56	GP-56			MS-456	10%
C81											
C82	56			N750-81 56	TCN-56	C10Q56U	TCT-56			N750 10%	
C83	.047	400		P488N-047	DF-503	CUB4S47			GEM-4147	47M-S47	
C84	.047	400		P488N-047	DF-503	CUB4S47			GEM-4147	47M-S47	
C85	270			1469-00027	TCZ-470	SR5T27	GP-270		MS-327	10%	

① Not used in some versions.
② Some versions may use 3.3mmf 5% (Part #C-106) in this application.
③ Some versions may use 1000mmf in this application.
④ Some versions may use 4.7mmf in this application.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	Setchell-Carlson Part No	REPLACEMENT DATA: CENTRALAB Part No.	IRC Part No.	MALLORY Part No.	INSTALLATION NOTES
R1A	500K	½	VR-506	B-50	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			Not Req.	Not Req.	Not Req.	Not Req.
C	Switch			KH-1 *	BWS-12	T6-1	U8-36	
R2	15K	½	VR-151					Contrast Tap ④ 5000Ω
R3A	500K	½	VR-504	AB-50	A47-500K-Z	Q13-133	U45	Tone
B	Shaft			AK-1	FKS-1/4	SQ	Not Req.	
R4A	4000Ω	½	VR-413	AB-13		Q17-114		Pix
B	Shaft			AK-1		SQ		
R5A	2.5meg	½	VR-503	BX-53	A47-2.5meg -S	Q11-139	SU-565	Horiz. Hold
B	Shaft			Not Req.	FKS-1/4	SQ	Not Req.	
R6A	2.5meg	½	VR-503	BX-53	A47-2.5meg -S	Q11-139	SU-565	Vert. Hold
B	Shaft			Not Req.	FKS-1/4	SQ	Not Req.	
R7A	2meg	½	VR-154	JP-205				Brightness
B	Shaft			Not Req.				
R8A	2.5meg	½	VR-503	BX-53	A47-2.5meg -S	Q11-139	SU-565	Focus
B	Shaft			Not Req.	FKS-1/4	SQ	Not Req.	
R9A	3000Ω	½	VR-301	AB-5	A47-3000-S	Q11-L2	SU-8	Vert. Lin.
B	Shaft			AK-1	FKS-1/4	SQ	Not Req.	
R10A	2.5meg	½	VR-503	BX-53	A47-2.5meg -S	Q11-139	SU-565	Height
B	Shaft			Not Req.	FKS-1/4	SQ	Not Req.	
R11	50Ω	2(WW)	VR-513					Horiz. Centering

* KH-1 used with red label control.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING: OHMS	WATT	Setchell-Carlson Part No.	NOTES
R12	470Ω			
R13	820Ω			
R14	330K			
R15	330K			
R16	10K	1		
R17	4700Ω			
R18	4700Ω			
R19	470Ω			
R20	82Ω			
R21	4700Ω			
R22	470Ω			
R23	15K			
R24	180Ω			
R25	3900Ω			Note 1
R26	47K			
R27	2.2meg			
R28	33000	1		
R29	33000			Note 5
R30	4.7meg			Note 5
R31	330K			
R32	22K			
R33	470K			Note 2
R34	5600Ω			
R35	47K			Note 3
R36	47K			Note 3
R37	180Ω			
R38	82Ω			
R39	180Ω			
R40	47K			
R41	22K			
R42	4.7meg			
R43	220K			
R44	15K			
R45	220K			
R46	33000			
R47	470K			
R48	330Ω	1		
R49	470K			
R50	2.2meg			
R51	47K			
R52	47K	2		
R53	2.2meg			
R54	22K			
R55	47K			
R56	8200Ω			

ITEM No.	RATING: OHMS	WATT	Setchell-Carlson Part No.	NOTES
R57	4700Ω			
R58	330K			
R59	4700Ω			
R60	1meg			
R61	1meg			
R62	4.7meg			
R63	8200Ω			
R64	4.7meg			
R65	47K			
R66	22K			
R67	470Ω			
R68	470Ω			
R69	470Ω			
R70	470K			
R71	470K			
R72	470K			
R73	47K			
R74	15K	1		
R75	1200Ω			
R76	68K			
R77	2.2meg			
R78	150K			
R79	15K			
R80	1meg			
R81	470K			
R82	82Ω			
R83	47K	2		
R84	47K	2		
R85	47K			
R86	39000Ω			
R87	2.2Ω			
R88	1200Ω			Note 6
R89	1200Ω			Note 6
R90	2Ω	5	R-105	
R91	100K			
R92	1meg			
R93	1200Ω			
R94	470K			
R95	47K	2		
R96	22K			
R97	6000Ω	7		
R98	47K			
R99	470K			
R100	1meg			Note 7

Note 1. Some versions may use 3000Ω in this application.
Note 2. Some versions may use 4.7meg in this application.
Note 3. Some versions may use a single 22K 1W to replace R35 and R36.
Note 4. Some versions may use a47K in this application.
Note 5. Not used in some versions.
Note 6. Some versions may use a single 600Ω 1W to replace R88 and R89.
Note 7. Some versions may use 3.3meg in this application.

TRANSFORMER (POWER)

ITEM No	RATING: PRI.	SEC. 1	SEC. 2	Setchell-Carlson Part No.	Halldorson Part No	Merit Part No	Ram Part No	Stancor Part No	Thordarson Part No	Triad Part No
T1	117V	105V	6.3V	T-126						
	②1.2A	②.330A	②8.5A							

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	Setchell-Carlson Part No	Halldorson Part No	Merit Part No	Ram Part No	Stancor Part No	Thordarson Part No	Triad Part No	NOTES
T2	Vert. Output	T-101	A-3039 ⑤	V300 ⑤	A-8144 ⑤				
T3A	Yoke-Horiz. (21MIB)	Y-104 ⑤	DF807 ⑤⑥	MDF-80 ⑤⑥	DY-16A ⑤⑥	DY-16 ⑤⑥	Y-41 ⑤		
B	(90°) Vert. (41MIB)						NW20 ⑤		
	Rear Cover	Y-105							
	Yoke Clamp	Y-106							
T4	Horiz. Output	T-133							

① Connect as autoformer (Red to Yellow). Connect red lead and yellow lead to terminal 8G (Pin #6 yoke socket), green lead to screen and B+.
② Drill new mounting hole(s).
③ Connect blue lead to plate, green to screen and B+, red to terminal 8G (Pin #6 yoke socket)
④ Does not include resistors (R88, R89), lead or rear cover.
⑤ Use original yoke damping network.
⑥ Mount with leads out top, connect same as original.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	Setchell-Carlson Part No.	Halldorson Part No	Merit Part No	Ram Part No	Stancor Part No	Thordarson Part No	Triad Part No	NOTES
T5	7000Ω	3-4Ω	T-126	Z1113	A-2831	AU-802	A-3850	24S53	S-7X	

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	Setchell-Carlson Part No.	QUAM Part No.	NOTES
SP1	6"	PM	3-4Ω	W-106	6A1	① Alternate
SP2	6"	PM	3-4Ω	W-104	6A1	
	10"	PM	3-4Ω	W-103 ①	10A31	
	8"	PM	3-4Ω	W-105 ①	8A10	

COILS (RF-IF)

ITEM No	USE	Setchell-Carlson Part No	Meissner Part No	Merit Part No	Miller Part No	Ram Part No	NOTES
L1A	47.25MC Trap						
B	47.25MC Trap						
L2	1st. Video IF	T-128					
L3	2nd. Video IF	T-128					
L4	3rd. Video IF	T-129					
L5A	41.25MC Trap	T-127					
B	Sound IF						
L6	Series Peaking Coil	L-111	19-3250 *	TV-185 *	6181 *	VP-6 *	225 Microhenries, wound on 10K resistor①
L7	Series Peaking Coil	L-102	19-3300 ⚠	TV-189 ⚠	6155 ⚠		300 Microhenries, wound on 22K resistor ②
L8	Series Peaking Coil	L-111	19-3250 *	TV-185 *	6181 *	VP-6 *	225 Microhenries, wound on 10K resistor ③
L9	Series Peaking Coil	L-110	19-6400 ⚠	TV-208 ⚠	6156 ⚠		600 Microhenries, wound on 33K resistor④
L10	Ratio Det.	T-104	17-3497	TV-115	6808	SD-4	
L11	Input IF	T-115	16-6758	BC-552	13-C1	RF-1	
L12	Output IF	T-115	16-6758	BC-553	13-C2	RF-2	

* Parallel with 10K resistor
⚠ Parallel with 22K resistor.
① Some versions may use part #L-101 (235 Microhenries wound on 22K resistor).
② Not used in some versions.
③ Some versions may use part #L-103 (300 Microhenries wound on 22K resistor).

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES: PRI.	SEC.	Setchell-Carlson Part No.	Meissner Part No.	Merit Part No.	Miller Part No	Ram Part No	Thordarson Part No	NOTES
L13	103Ω		L-113						23-84 Millihenries

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC RES.	INDUCTANCE (@ CURRENT 1000 ~)	Setchell-Carlson Part No.	Halldorson Part No	Merit Part No.	Ram Part No	Stancor Part No	Thordarson Part No	Triad Part No
L14	.200A	27Ω	1.3 Hy.	L-112	C5040 ①	A-2976		C-2327 ①	26C43	C-21X

① Drill new mounting hole.

RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	Setchell-Carlson Part No.	REPLACEMENT DATA: FEDERAL Part No.	GENERAL ELECTRIC Part No.	INTERNATIONAL Part No.	SARKES TARZIAN Part No.	NOTES
M1	.250A				SD94A ①	M500 ①	① Silicon type.
M2	.230A				SD94A ↓	M500 ↓	

FUSES

ITEM No	TYPE	RATING	Setchell-Carlson Part No: FUSE	HOLDER	LITTELFUSE Part No: FUSE	HOLDER	BUSS Part No: FUSE	HOLDER
M3	3AG	2A 250V			312002 (2A-250V-3AG)	342003	AGC 2	

CRYSTAL DIODES

ITEM No	OBSG. TYPE	REPLACEMENT DATA: Setchell-Carlson Part No.	CBS Part No	SYLVANIA Part No	NOTES
M4	1N80		1N80	1N80	Video Detector (Pigtail)
M5	1N80		1N80	1N80	AM Detector (Pigtail)
M6	1N80		1N80	1N80	Horiz. Phase Detector (Pigtail)
M7	1N80		1N80	1N80	Horiz. Phase Detector (Pigtail)

SETCHELL-CARLSON MODELS 58, R-581, 582, 583, 5800, R-5801, 5802, 5803 (Ch. 158, 1588P)

FOLDER 4

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	Setchell-Carlson PART No.	NOTES
M8	Lamp		#47
M9	Lamp		#47
M10	Lamp		#47
M11	Tuner	57B48	VHF (A unit Series 100)
M12	Tuner	Z-108	Permeability, Assy., Radio, Complete with drive gears
M13	Switch		Phono-Radio-TV (Rotary, wafer type)

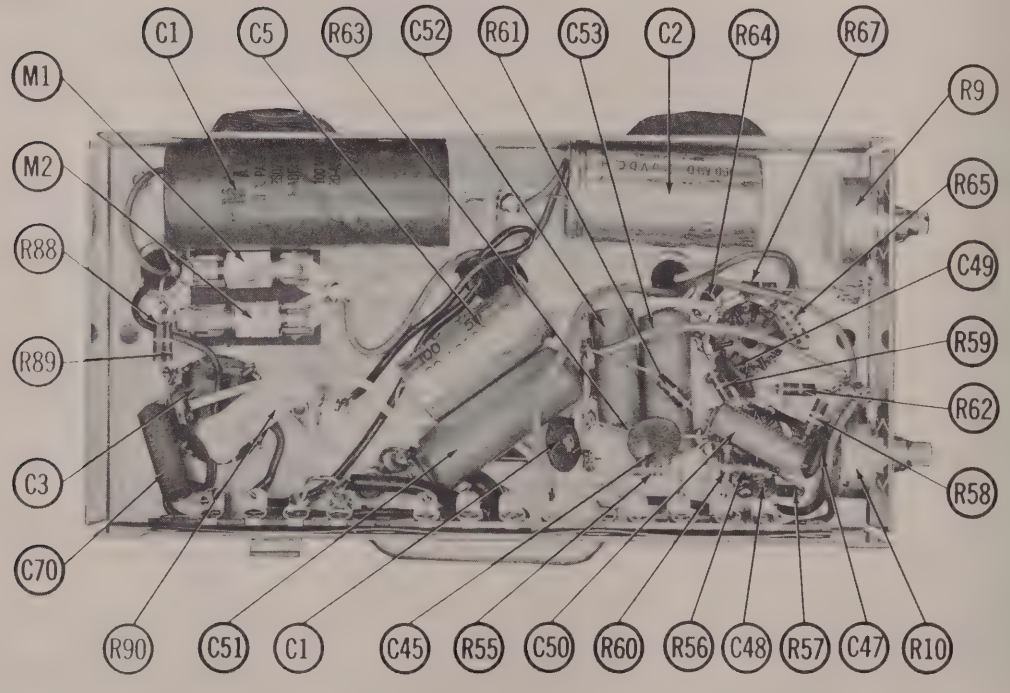
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

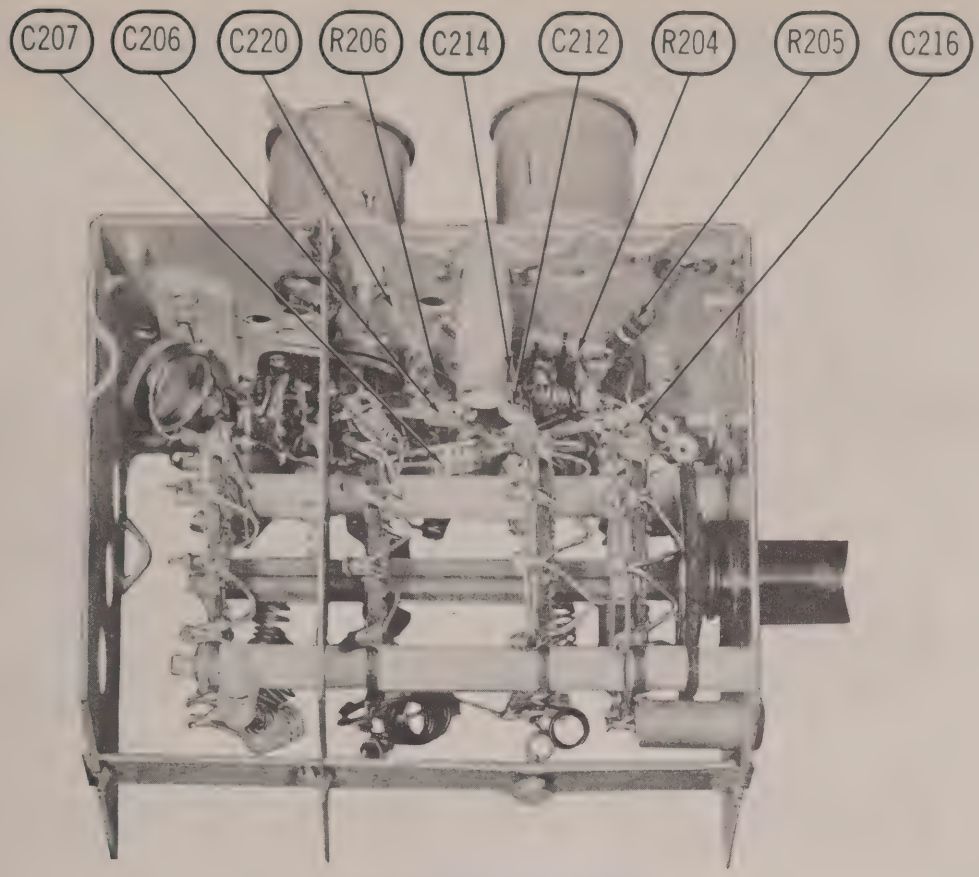
NAME	PART NO.	DESCRIPTION
Safety Glass	GM-107	21" Models
Safety Glass	GM-109	24" Models
Mask	GM-108	21" Models
Mask	GM-110	24" Models
Knob	K-121	Medium (Volume, Contrast, etc.)
Knob	K-122	Small (Tone)
Knob	K-128	Medium (Contrast) Models 58, 581, 5800, 5801
Knob	K-129	Rim Dial, (calibrated for radio)
Knob	K-130	Rim Dial, (Fine tuning or contrast)
Knob	K-131	Radio-Phono-TV
Knob	K-132	Channel Selector

WIRING DATA

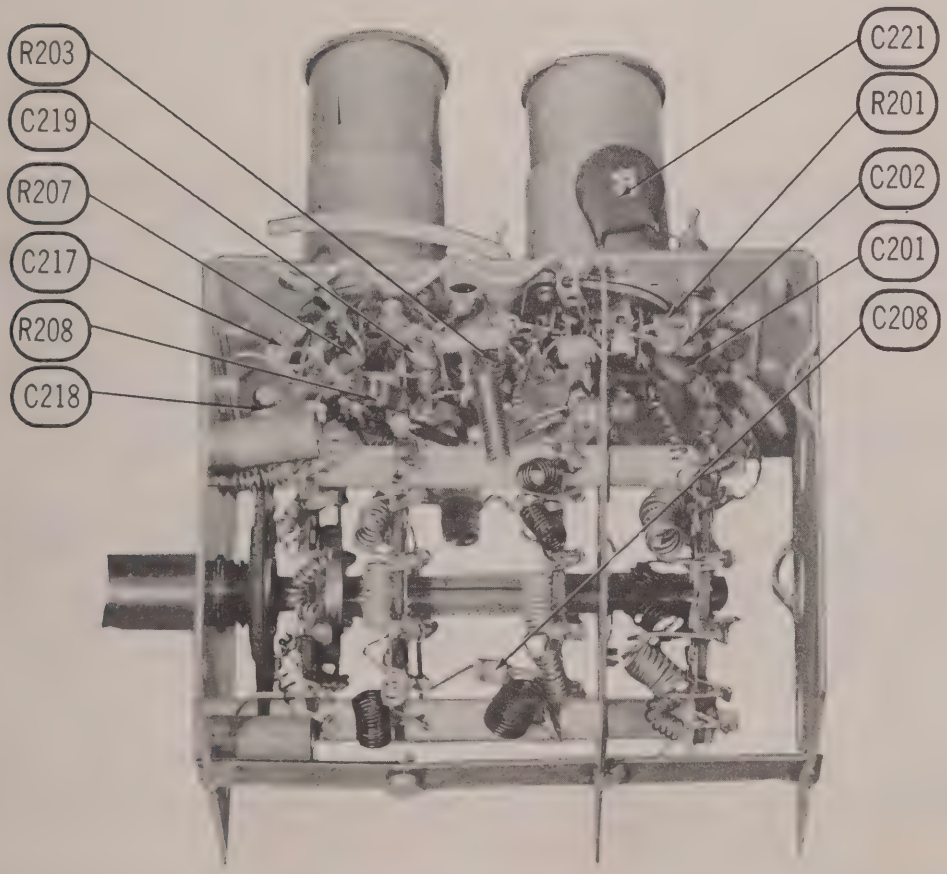
High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor)
		8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors
		8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor
		8485 (Round) - 5 Conductor
		8488 (Round) - 8 Conductor



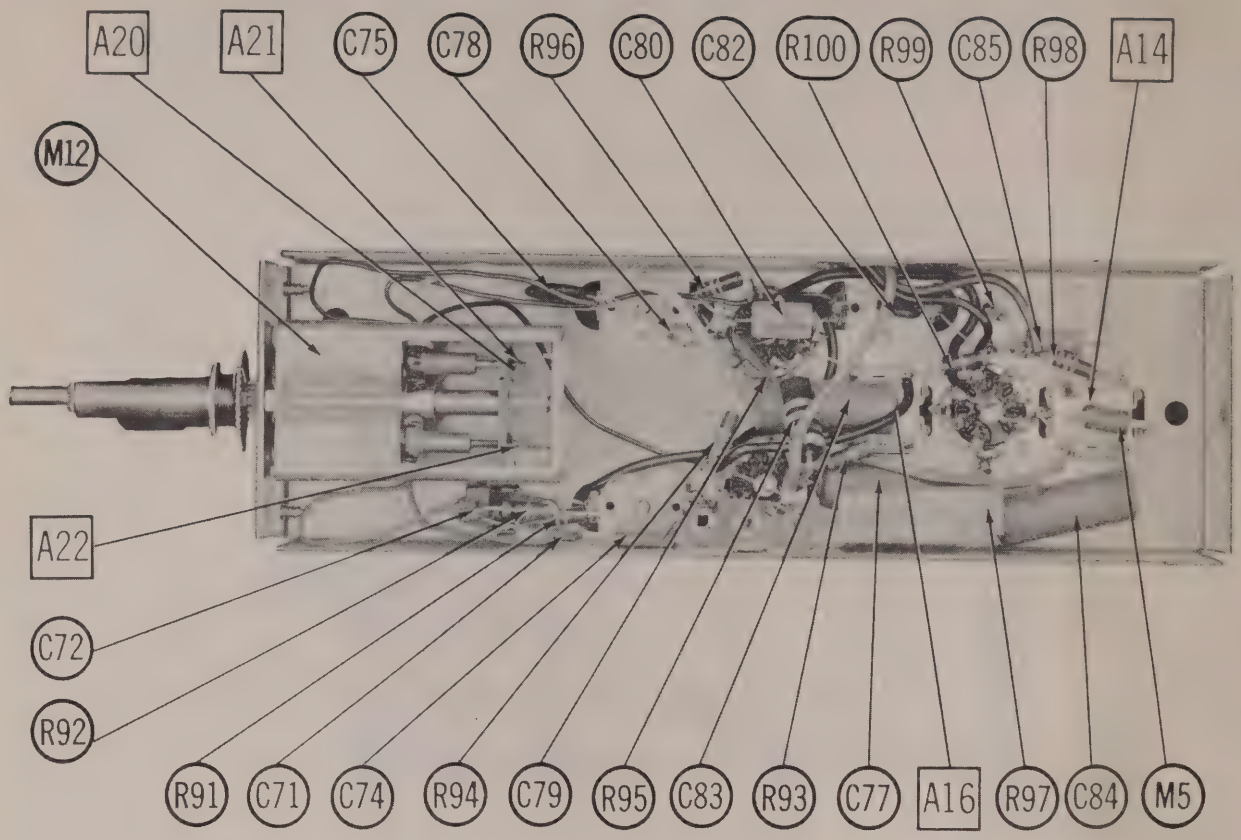
POWER AND VERT SUB CHASSIS



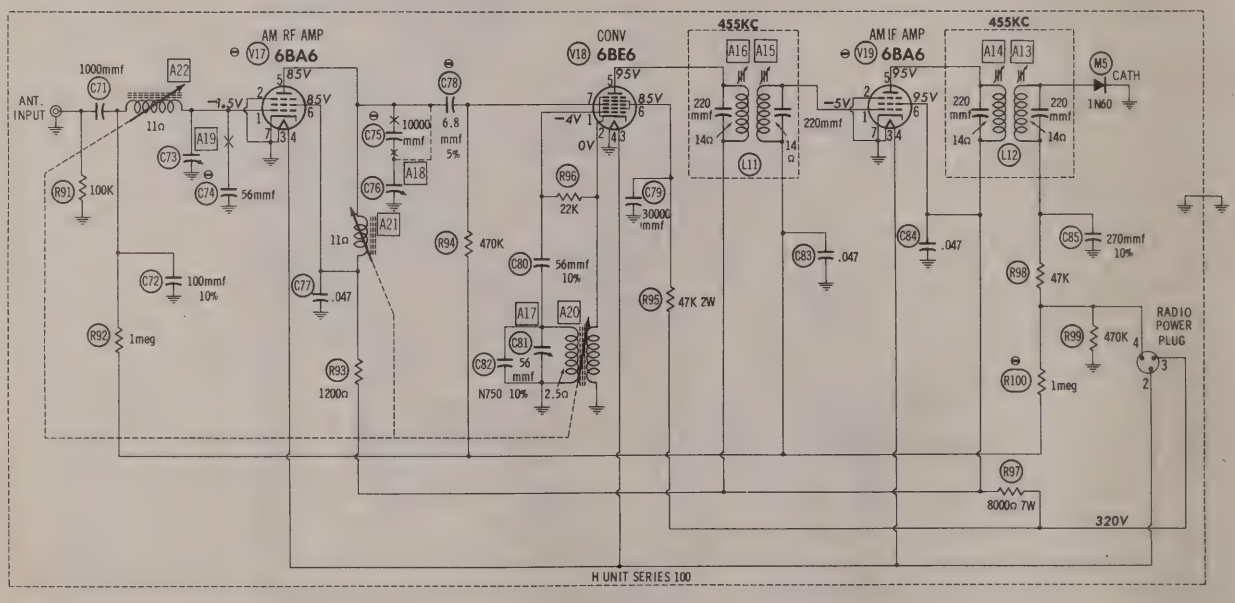
RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE

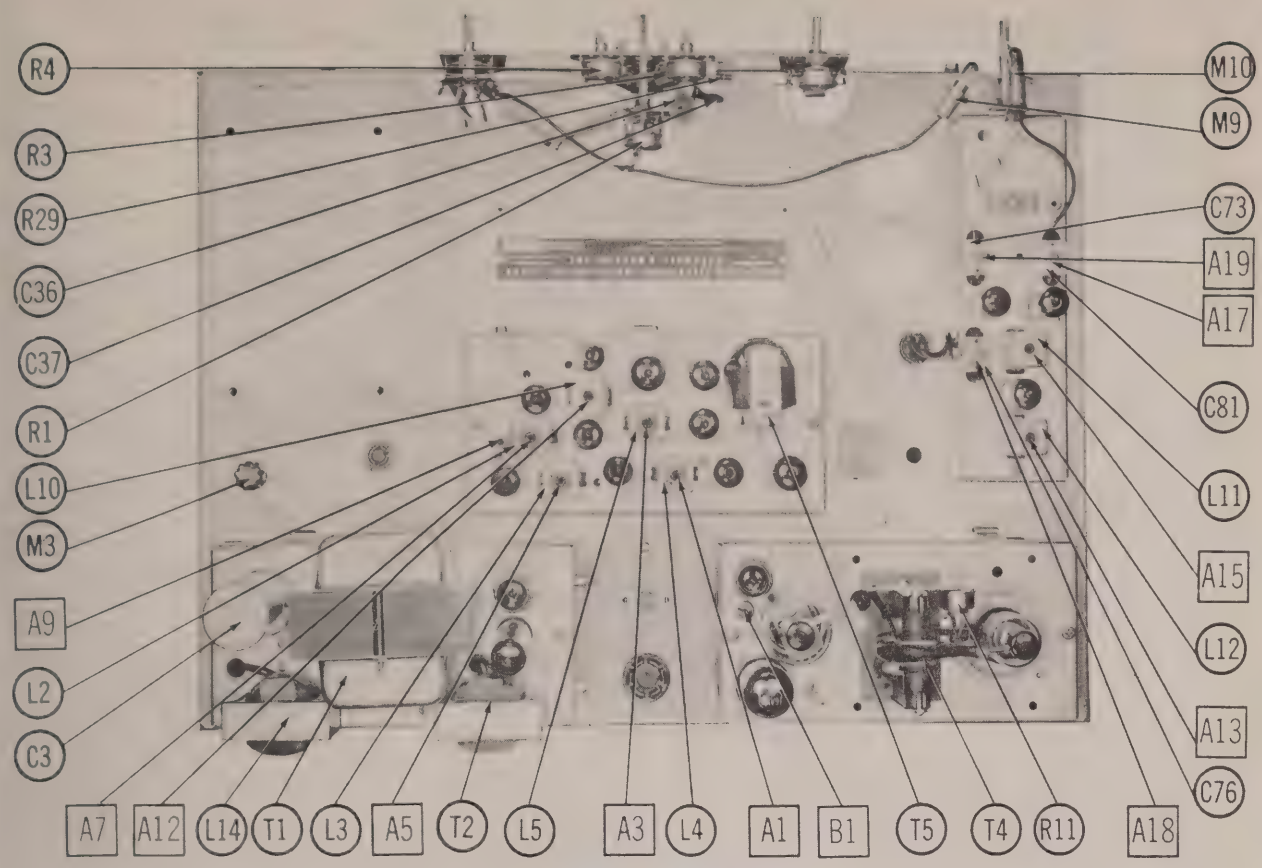


RADIO SUB CHASSIS

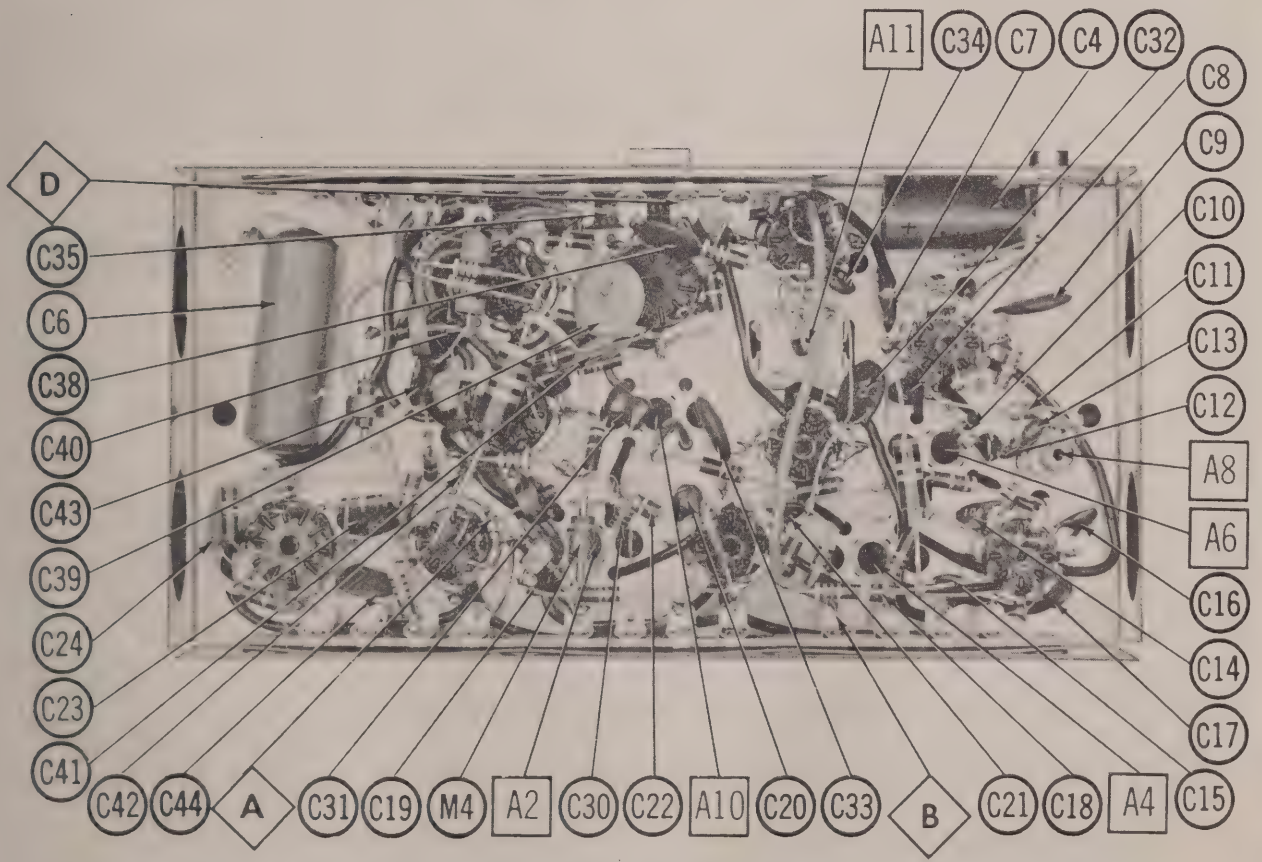


A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

RADIO SUB CHASSIS SCHEMATIC



CHASSIS TOP VIEW



IF SUB CHASSIS - CAPACITOR. ALIGNMENT IDENTIFICATION

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	190K	4700Ω	.1Ω	0Ω	†10K	†10K	4700Ω		
V2	6BZ6	▲.1Ω	▲82Ω	.1Ω	0Ω	†470Ω	†470Ω	INF		
V3	6BZ6	■120Ω	■0Ω	.1Ω	0Ω	†470Ω	†15K	INF		
V4	6AW8A	†23K	†28K	380K	.1Ω	0Ω	0Ω	2.2meg	†28K	†3300Ω
V5	6BZ6	180Ω	82Ω	0Ω	.1Ω	■126Ω	■120Ω	0Ω		
V6	6AL5	INF	INF	.1Ω	0Ω	22K	0Ω	0Ω		
V7	12AX7	†240K	4.7meg	0Ω	.1Ω	.1Ω	†240K	15K	2200Ω	0Ω
V8	6AQ5	485K	330Ω	0Ω	.1Ω	†340Ω	†23K	485K		
V9	6AQ5	470K	330Ω	0Ω	.1Ω	†400Ω	†23K	470K		
V10	6CS6	†2.2meg	0Ω	0Ω	.1Ω	†85K	†47K	2meg		
V11	12AU7A	†220K	4700Ω	4700Ω	0Ω	0Ω	†1.5meg	1.6meg	4700Ω	.1Ω
V12	6CM6	†850Ω	NC	4.7meg	.1Ω	0Ω	4.7meg	900Ω	NC	†1200Ω
V13	12AU7A	†150K	68K	1200Ω	.1Ω	.1Ω	†15K	950K	1200Ω	0Ω
V14	6DQ6A	NC	0Ω	TP	†47K	1meg	NC	.1Ω	0Ω	TOP CAP ‡12Ω
V15	6AX4GT	NC	NC	¶	NC	†0Ω	NC	0Ω	.1Ω	
V16	1B3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP ‡267Ω
V17	6BA6	▲2.5meg	0Ω	0Ω	.1Ω	▲†9300Ω	▲†9300Ω	0Ω		
V18	6BE6	▲22K	▲.5Ω	.1Ω	0Ω	▲†8000Ω	▲†47K	▲2meg		
V19	6BA6	▲1.5meg	0Ω	0Ω	.1Ω	▲†8000Ω	▲†8000Ω	▲0Ω		
V20	21CBP4A	0Ω	22K	PIN 6 ‡130K	PIN 10 ‡370K	PIN 11 650K	PIN 12 .1Ω			
V201	6BC8	†0Ω	INF	INF	.1Ω	0Ω	INF	5meg	0Ω	0Ω
V202	6CL8	15K	▲4700Ω	0Ω	.1Ω	0Ω	▲2200Ω	▲470Ω	0Ω	230K

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT. THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

† MEASURED FROM 275V SOURCE.

‡ MEASURED FROM PIN 3 OF V15.

▲ MEASURED FROM PIN 7 OF V2.

■ MEASURED FROM PIN 7 OF V3.

▲ MEASURED IN RADIO POSITION.

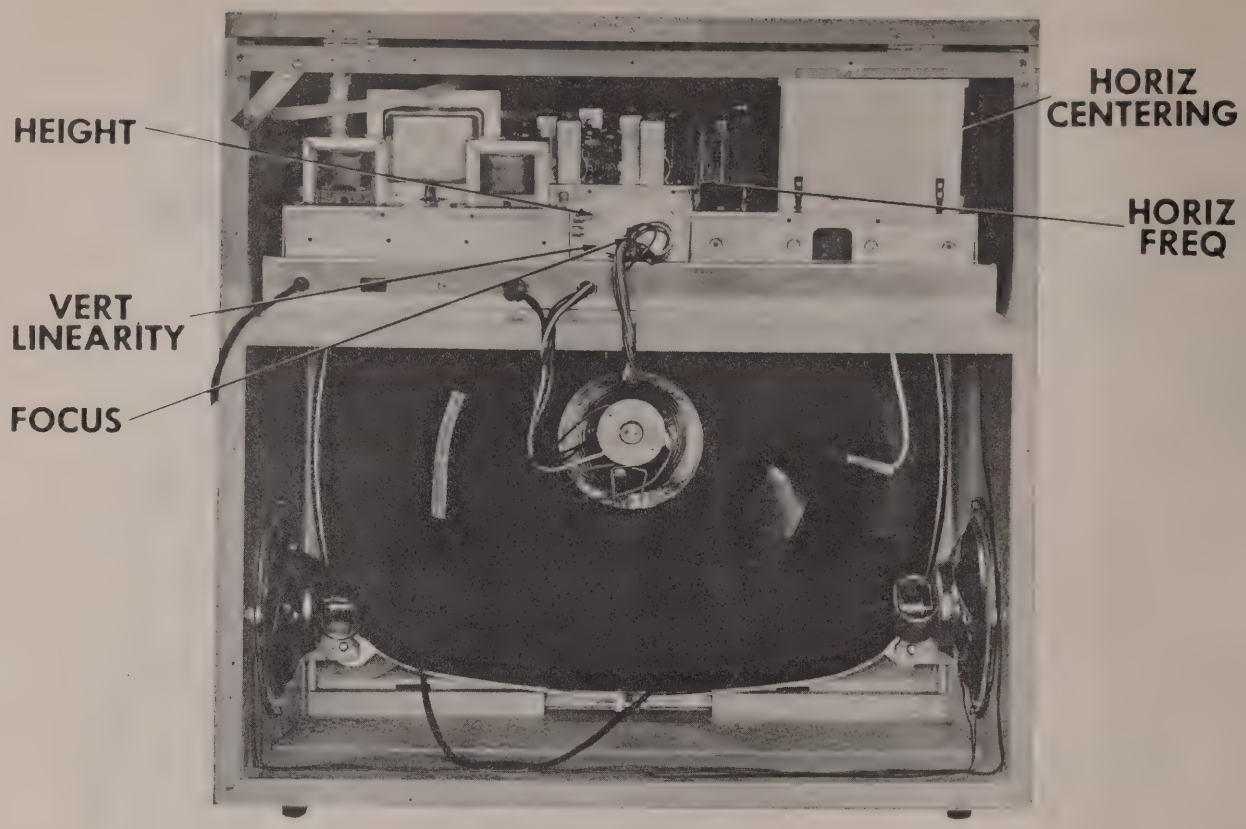
NC NO CONNECTION.

TP TIE POINT.

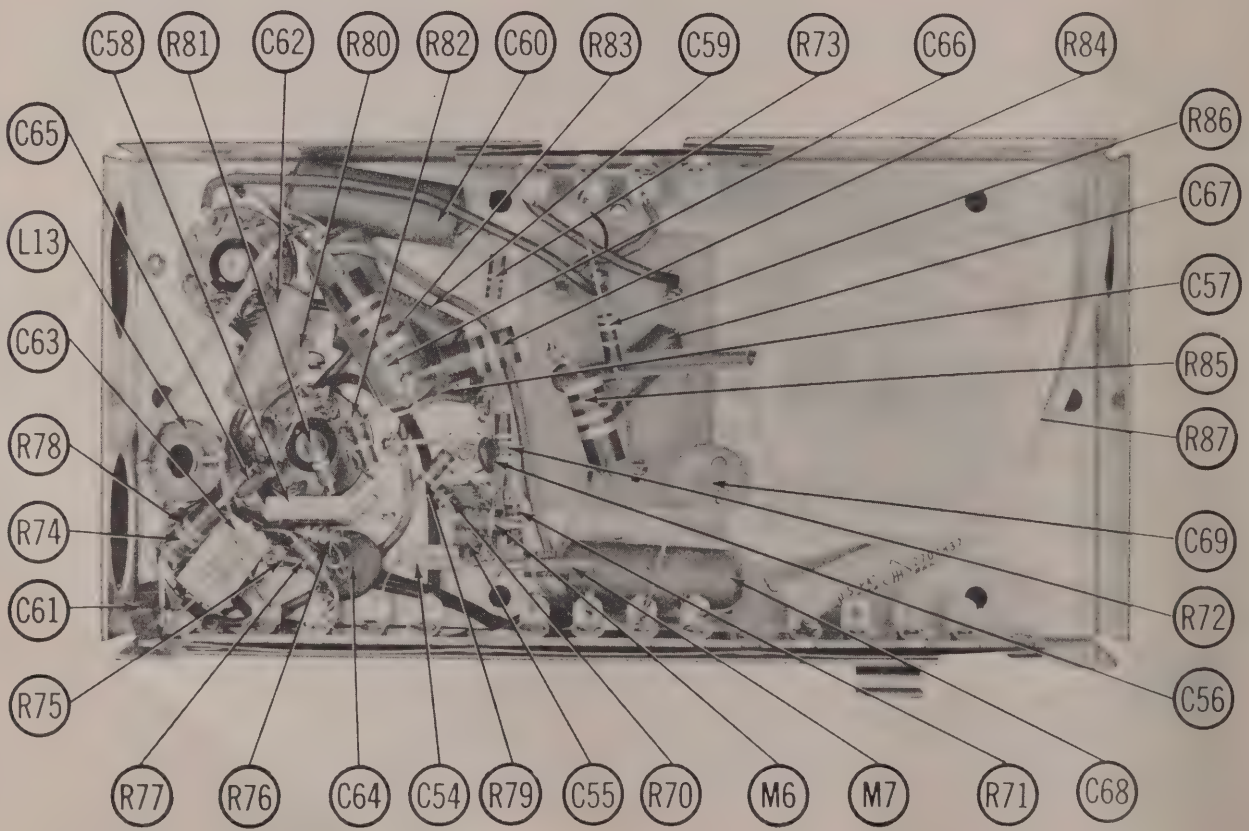
HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Set the horizontal hold control to the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.



CABINET REAR VIEW

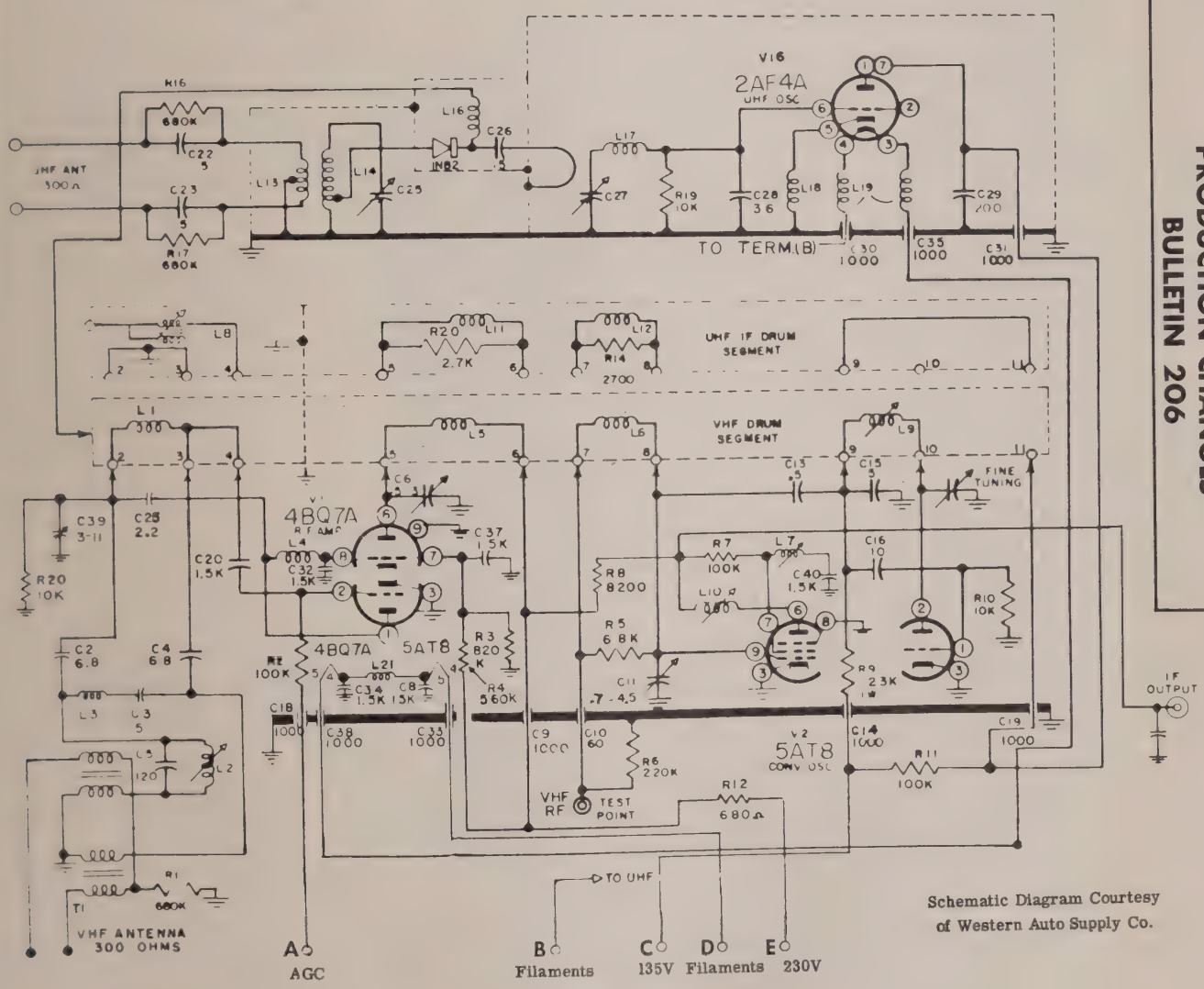


HORIZ SUB CHASSIS

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 5 IN SET 375	
	Truetone Models 2D1720A, B, 2D1721A, B, 2D1724A, B, 2D2726A, B, 2D2727A, B and 2D2728A, B were covered in Photofact Folder 5 – Set 375. Additional tuners have been used in models 2D2728A and 2D2728B and are given with the publication of this bulletin.
Model 2D2728A	VHF/UHF TUNER ADDED Model 2D2728A uses VHF/UHF tuner #1D3448. A schematic showing the new tuner is given in Fig. 1.
Model 2D2728B	VHF/UHF TUNER ADDED Model 2D2728B uses VHF/UHF tuner #211-27286. A schematic showing the new tuner is given in Fig. 2.

TRUETONE MODELS 2D2728A, 2D2728B

PRODUCTION CHANGES
BULLETIN 206

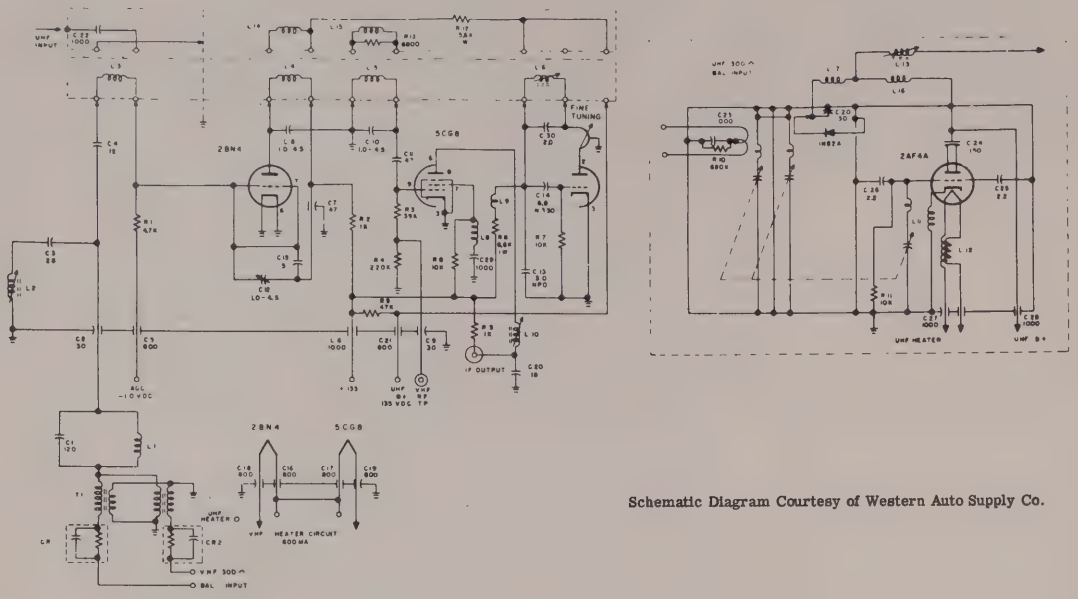


Schematic Diagram Courtesy of Western Auto Supply Co.

FIG. 1 - TUNER # 1D3448

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



Schematic Diagram Courtesy of Western Auto Supply Co.

FIG. 2 - TUNER # 211-27286

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 1 IN SET 347

AIRLINE MODEL GRX-4020B

Airline Models GRX-4020A and GRX-4120A were covered in Photofact Folder 1 — Set 347.

Model GRX-4020B is electrically identical to the models covered, except for the following changes.

NEW VHF TUNER

Model GRX-4020B uses VHF tuner #R-2582. A schematic showing the new tuner is given along with Alignment Instructions in this bulletin.

ALIGNMENT INSTRUCTIONS

NOTE: This tuner has been carefully aligned and checked at the factory to give best possible performance. The following instructions are given for your information and in the event replacement of tubes or parts necessitates realignment. When replacing oscillator tube, select one which requires minimum touch-up. Allow 3 minute warm-up minimum.

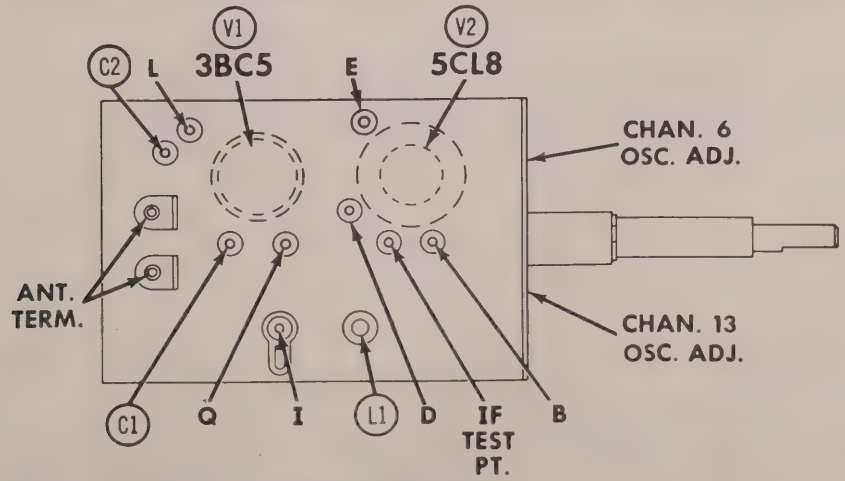
OSCILLATOR ADJUSTMENTS
1. Turn station selector to highest available channel 13 to 7.
2. Set fine tuning in center of range and do not move until procedure is finished.
3. Adjust high channel oscillator screw for best picture.
4. Turn station selector to highest low channel 6 to 2.
5. Adjust low channel oscillator screw for best picture. Counter clockwise rotation of core increases frequency.

RF BANDPASS ADJUSTMENTS

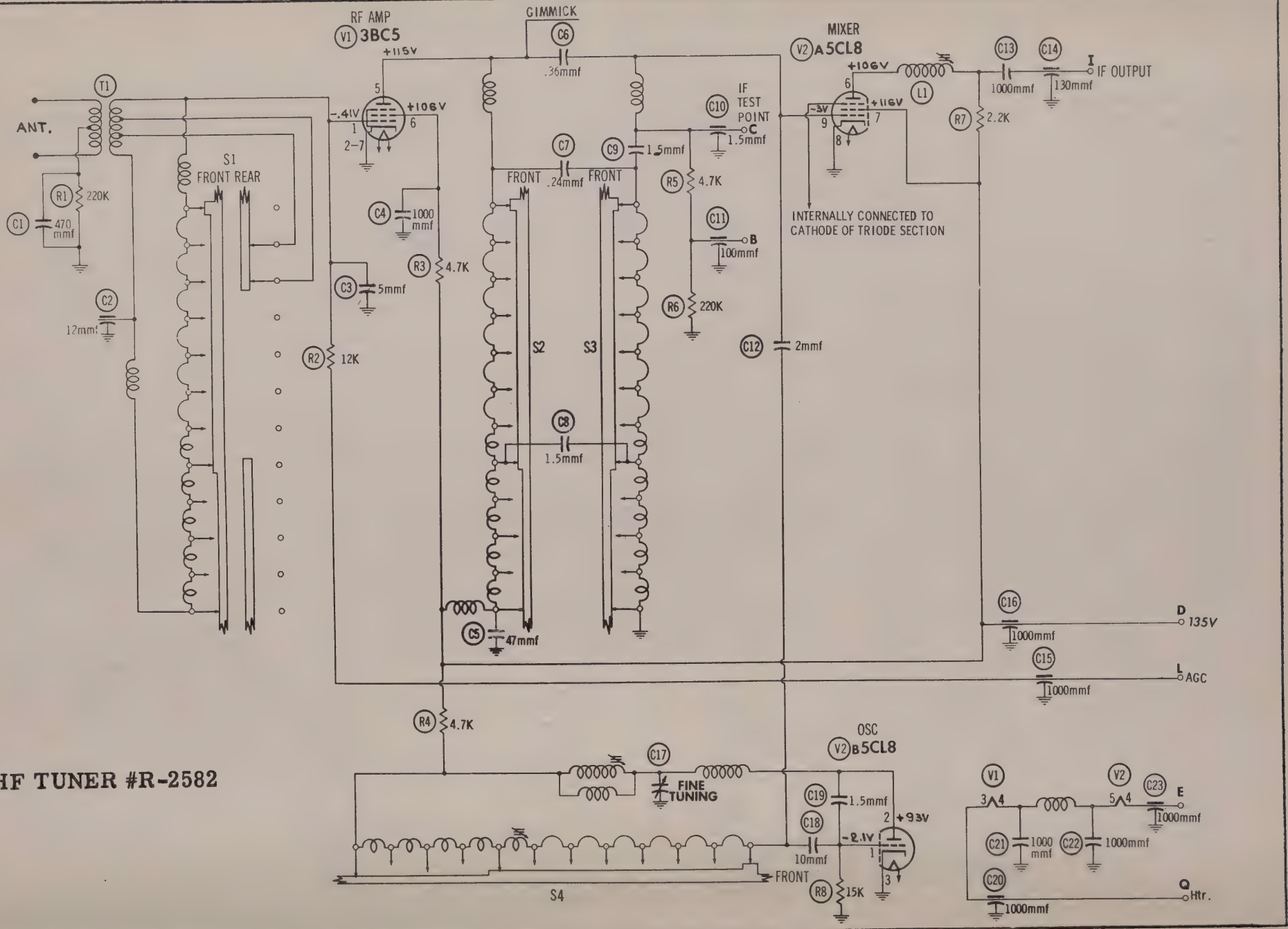
CAUTION: Attempt this alignment only with proper equipment and set up.
Tube shields must be extended. Have rated supply voltages fed to tuner. Clamp grid bias on tuner (AGC) at -3.0 volts.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST
Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point B . Low side to chassis.	Align channel 13, antenna, RF plate and mixer grid coils to obtain a flat response with maximum gain. Spreading the coils increases the frequency. A tuning wand may be used to determine what change is necessary. Band pass should include both carriers and have steep sides. Align the incremental loops of the RF plate and mixer grid from 12 to 7 in that order. Pushing the loops in, increases the frequency.
		207MC (10MC Swp)	205.25MC 209.75MC	12		
		201MC (10MC Swp)	199.25MC 203.75MC	11		
		195MC (10MC Swp)	193.25MC 197.75MC	10		
		189MC (10MC Swp)	187.25MC 191.75MC	9		
		183MC (10MC Swp)	181.25MC 185.75MC	8		
		177MC (10MC Swp)	175.25MC 179.75MC	7		
"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	Align channel 6 antenna, RF plate and mixer grid coils to obtain a flat response with maximum gain. Spreading the coils increases the frequency. A tuning wand may be used to determine what change is necessary. Band pass should include both carriers and have steep sides. Align incremental coils of antenna, RF plate and mixer grid from 5 to 2 in that order. Spreading coils increases the frequency.
		79MC (10MC Swp)	77.25MC 81.75MC	5		
		69MC (10MC Swp)	67.25MC 71.75MC	4		
		63MC (10MC Swp)	61.25MC 65.75MC	3		
		57MC (10MC Swp)	55.25MC 59.75MC	2		

Be sure to adjust antenna until gain is maximum at midband. Antenna adjustments will raise or lower sound side, but should always be aligned for maximum gain at center of bandpass. On low channels there will be a small hump between markers. This is the antenna gain and should be placed in the center of the bandpass.



(Continued on Reverse Side)



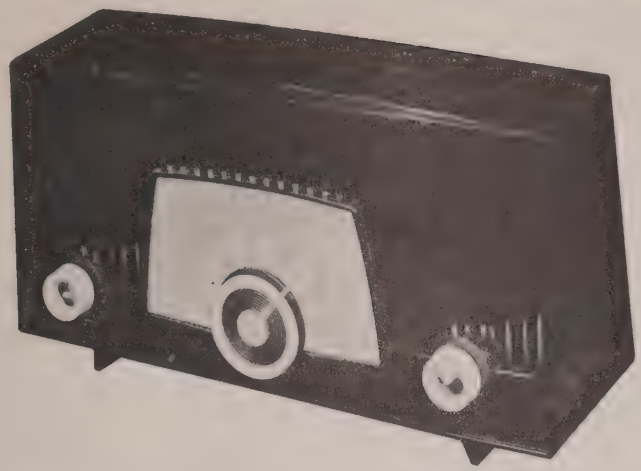
VHF TUNER #R-2582

PHOTOFACT* Folder

EIA

PHILCO MODELS F-760, F-963

PHILCO MODELS F-760, F-963

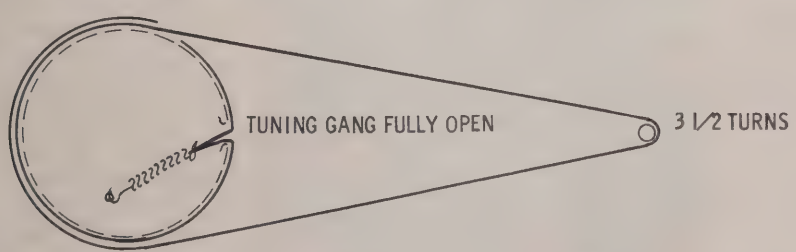


TRADE NAME	Philco Models F-760 (Clock Version), F-963
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC-DC Operated AM Receiver (Model F-760 AC only)
TUBES (Six)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 35C5 Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC-DC (Model F-760 AC 60~ only) RATING .27 Amp. @ 117 Volts AC (26 Watts)
TUNING RANGE—BROADCAST	535 - 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd	High side to pin 7 (grid) of 12BE6 (V2). Low side to B-.	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.		Loop	1620KC	1620KC	"	A5	Place a .006" non-metallic shim between stator and rotor of tuning gang. Close gang against shim. Carefully remove shim. Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1520KC	Tune to 1520KC signal	"	A6, A7	Adjust for maximum output.
4.		"	580KC	Tune to 580KC signal	"	A8	"

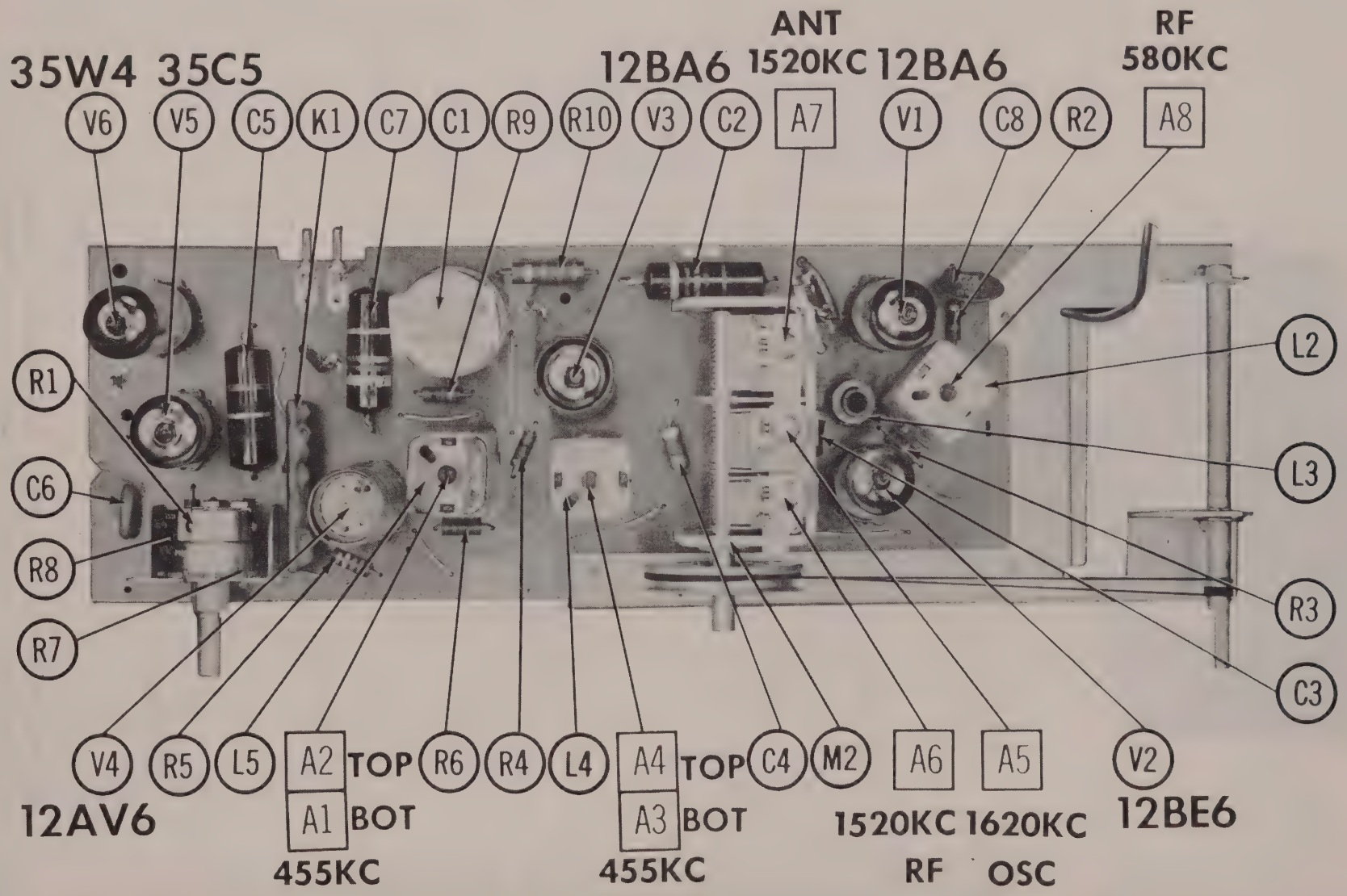


PHILCO MODELS F-760, F-963

SET 396 FOLDER 6

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12BA6	

ITEM No.	USE	TYPE	NOTES
V4	Det.-AVC-AF Amp.	12AV6	
V5	Output	35C5	
V6	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	30	150	30-2585-2	PRS150V3030	BBRT32V215	TCT3113	TDLT-2	FMT-1530	R2495 *
B	▲25	150		20					
C	■20	150							

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	200	30-4650-45	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C3	47		62-047009001	SI 47	D6-470	LT6Q47	GP-47	UC-5447	5GA-Q47	
C4	7.5		30-1224-83							N2200 10%
C5	.1	200	30-4650-47	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C6	4700		30-1262-2	BPD-0047	DD-472	BYA10D47M	ED-0047	UC-5247	5HK-D47	Note 1
C7	.047	400	30-4650-45	P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C8	10000		30-1262	BPD-01	DD-103	BYA10S1M	ED-01	DC511	5HK-S1	

Note 1. Early versions use . 0068mfd in this application (Part #30-4650-40).

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	2meg	½	33-5575 ①					Volume & Switch

① Part #33-5575-11 (without switch) used in Model F-760.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		PHILCO PART No.	NOTES
	OHMS	WATT		
R2	180Ω		66-1188340	
R3	22K		66-3228340	
R4	100Ω		66-1108340	
R5	680K		66-4688340	
R6	2.2meg		66-5228340	

ITEM No.	RATING		PHILCO PART No.	NOTES
	OHMS	WATT		
R7	470Ω		66-1478340	
R8	2700Ω		66-2278340	
R9	1000Ω		66-2108340	
R10	220Ω	1	66-1224340	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2400Ω	1.6Ω	Part of SP1							① Used in Model F-963 when two speakers #36-1655-3 are used.
	2700Ω	3-4Ω	322-0054 ① 32-8822 ②	Z1101	A-3025	AU-605	A-3332	26S58	S-12X	② Model F-760

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	36-1655-2①	4A07	① Model F-963, includes T1. Part #36-1655-3 (without T1) used in some versions.
SP2	4"	PM	3-4Ω	36-1655-3②	4A07	② Model F-963
	4"	PM	3-4Ω	36-1655-10③		③ Two used in Model F-760

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PHILCO PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	Loop Ant.	76-11463-1					Includes Cabinet Back Model F-963
	Loop Ant.	76-10188					Includes Cabinet Back Model F-760
L2	RF Trans.	32-4723-1					
L3	Osc. Coil	32-4693-6					
L4	Input IF	32-4583-16	16-6780	BC-356	13-PC1	RF-4	
	Input IF	32-4583-17	16-6780	BC-356	13-PC1	RF-4	Alternate Part
L5	Output IF	32-4583-17	16-6780	BC-357	13-PC2	RF-4	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	220mmf, 5000mmf, 220mmf, 5000mmf, 10meg, 150Ω, 470K, 470K	30-6500-1	Erie 708-04

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M1	Dial Lamp	34-2068	#47 Clear, Model F-963
	Dial Lamp	34-2676	#47 Frosted, Model F-760
M2	Tuning Cap.	31-2787-2	3 Gang, Model F-963
	Tuning Cap.	31-2787-3	3 Gang, Model F-760
M3	Clock	41-2066-7	Model F-760

CABINETS & CABINET PARTS

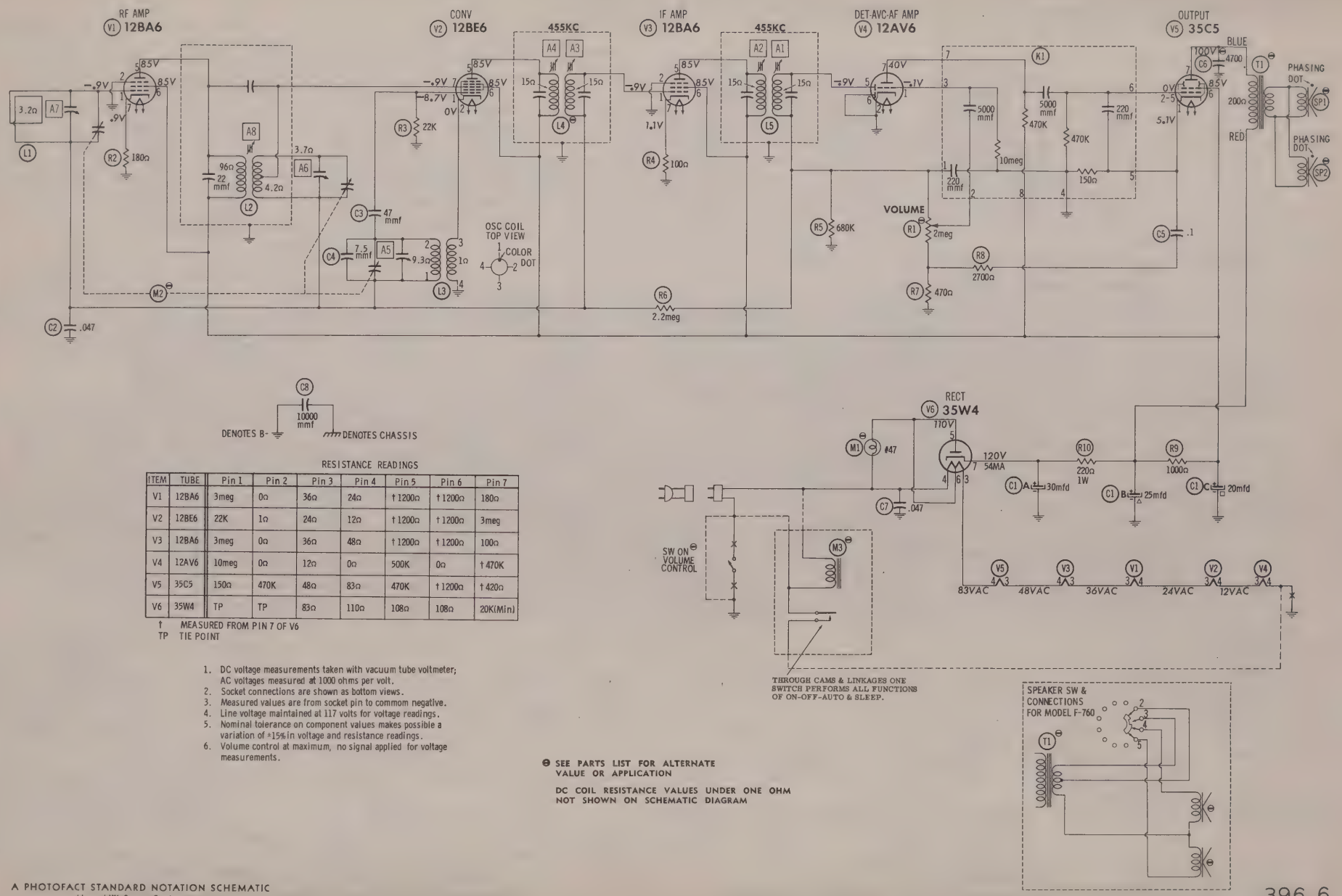
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	54-4718-43	Tuning and Volume, Model F-963
Knob	54-4718-44	Tuning and Volume, Model F-760
Knob	54-6512	Speaker Selector, Model F-760
Knob	54-6436-1	Clock, 2 used, Model F-760
Cabinet	11244-1	Ivory, Model F-963
Cabinet	11244-2	Mahogany, Model F-963
Cabinet	11274	Ivory, Model F-760
Cabinet	11274-1	Mahogany, Model F-760
Dial Pointer	54-6396-1	Model F-963
Dial Pointer	28-9734-6	Model F-760
Dial Scale	54-6409-1	Model F-963
Dial Window	54-6507-1	Radio, Model F-760
Clock Crystal	54-6506-1	Model F-760

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BA6	3meg	0Ω	36Ω	24Ω	†1200Ω	†1200Ω	180Ω
V2	12BE6	22K	1Ω	24Ω	12Ω	†1200Ω	†1200Ω	3meg
V3	12BA6	3meg	0Ω	36Ω	48Ω	†1200Ω	†1200Ω	100Ω
V4	12AV6	10meg	0Ω	12Ω	0Ω	500K	0Ω	†470K
V5	35C5	150Ω	470K	48Ω	83Ω	470K	†1200Ω	†420Ω
V6	35W4	TP	TP	83Ω	110Ω	108Ω	108Ω	20K(Min)

↑ MEASURED FROM PIN 7 OF V6
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

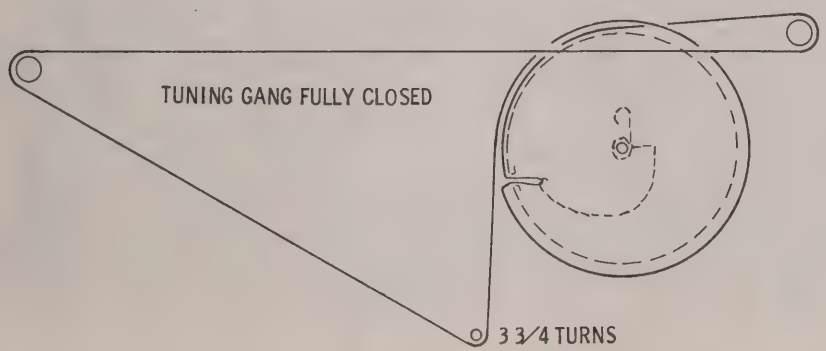
RCA VICTOR MODELS SHF3, SHF3D (Ch. RC-1168B)

RCA VICTOR MODELS
SHF3, SHF3D (Ch. RC-1168B)

RCA VICTOR MODELS
SHF3, SHF3D (Ch. RC-1168B)

TRADE NAME	RCA Victor Models SHF-3, SHF-3D (Ch. RC-1168B)		
MANUFACTURER	RCA Victor Radio & "Victrola" Div., Radio Corp. of America, Camden 8, N. J.		
TYPE SET	AC Operated FM-AM Receiver With 4 Speed Automatic Record Changer		
TUBES	Eleven		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	.92 Amp. @ 117 Volts AC (100 Watts Without Motor)
TUNING RANGE—BROADCAST	540 - 1600KC	FREQ. MOD.	88 - 108MC

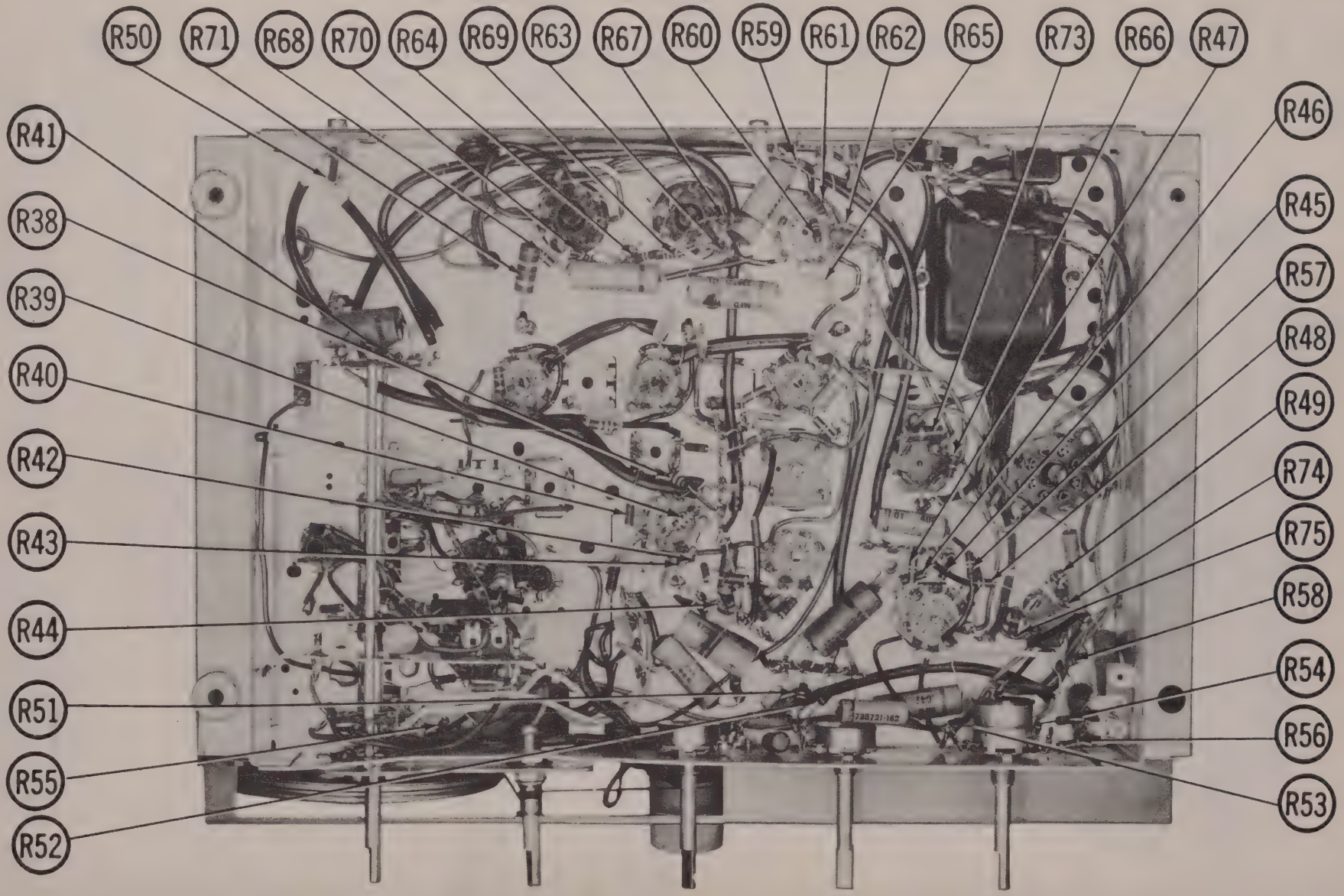
FOR SERVICE INFORMATION ON RECORD CHANGER RC-205C-3—SEE RCA RP-205 SERIES—PHOTOFACT SET 358 FOLDER 10



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H290

SET 396 FOLDER 7

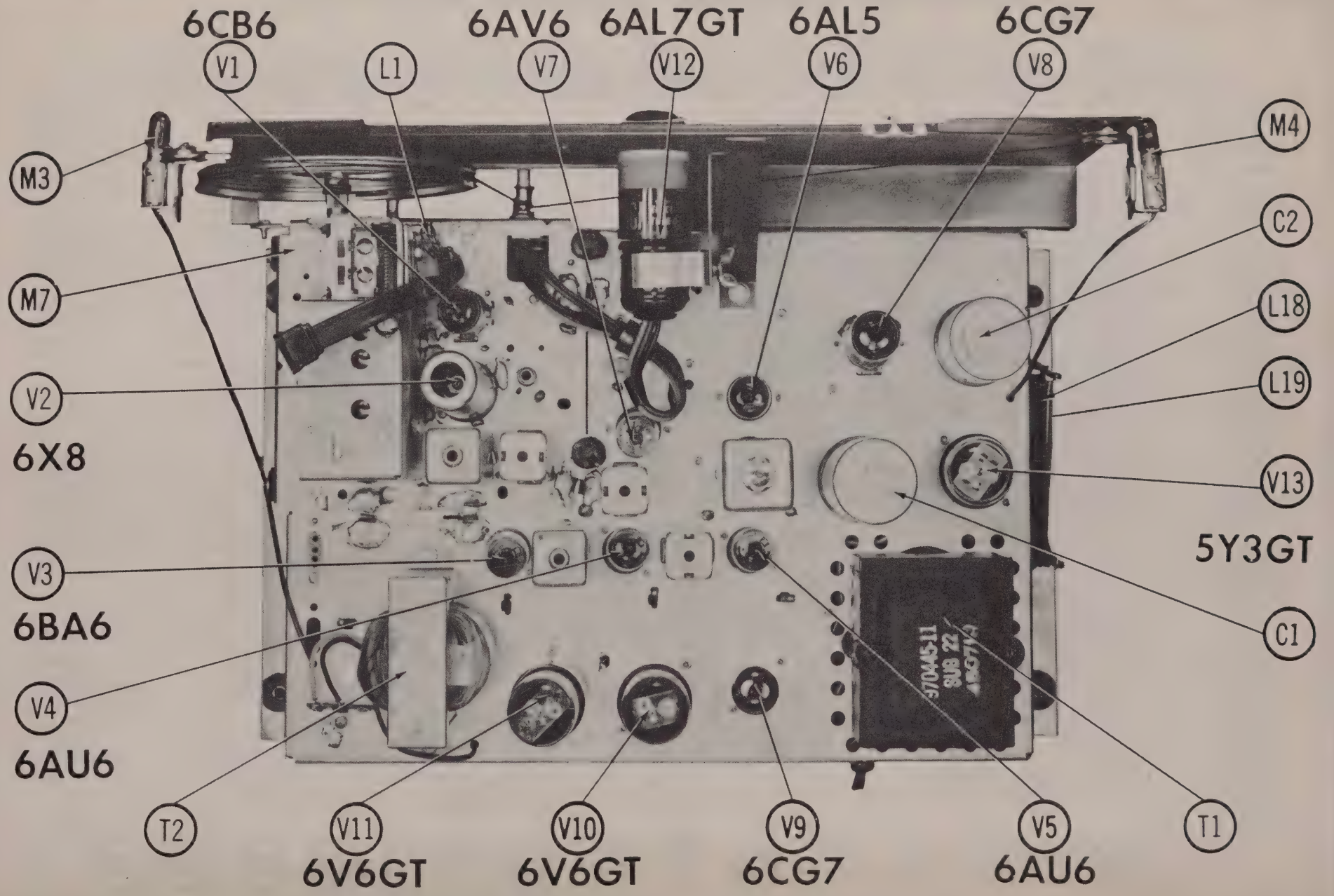


CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

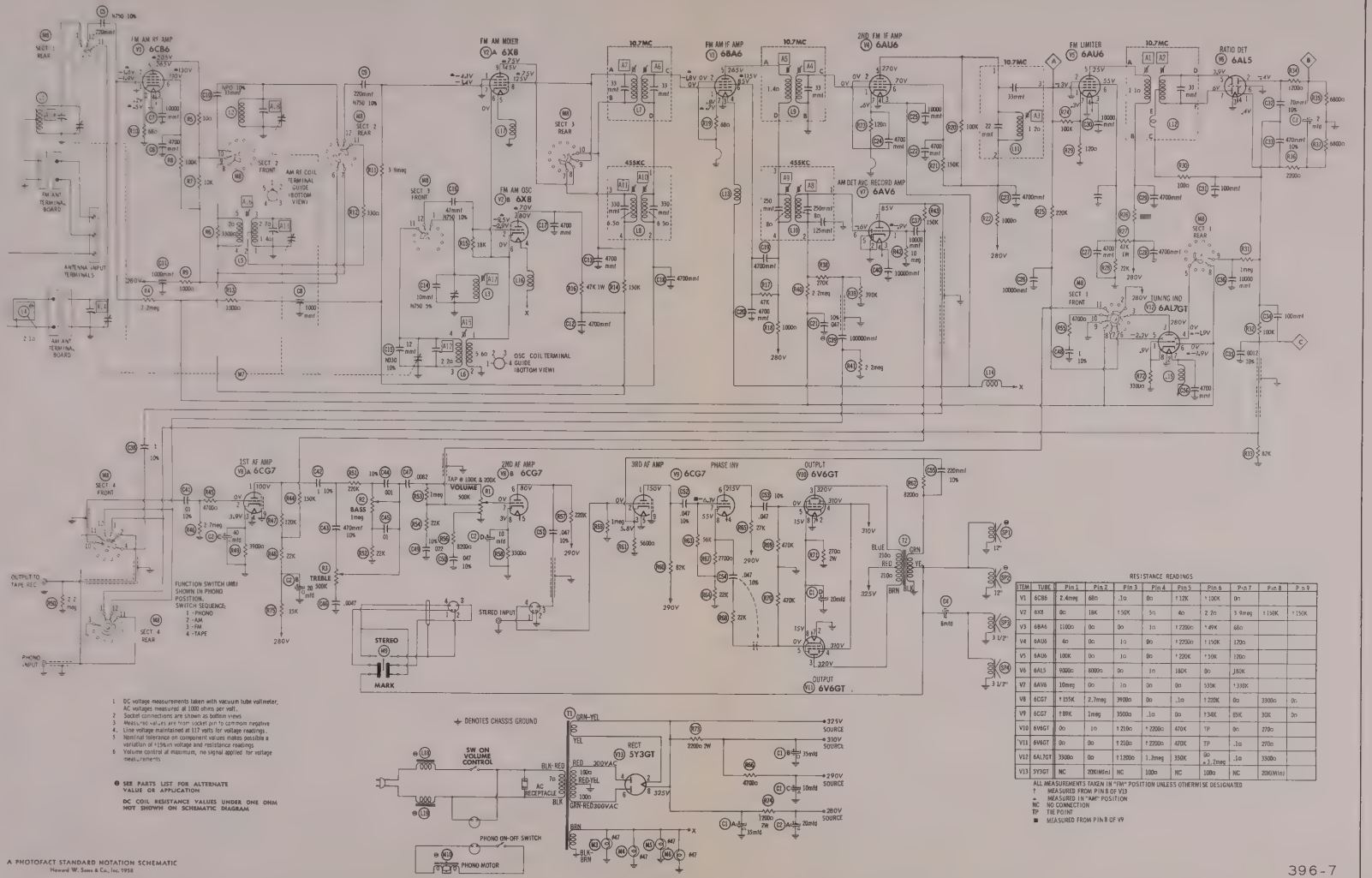
RCA VICTOR

MODEL SHF-3 (Ch. RC-1168B)

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



CHASSIS TOP VIEW - TUBE IDENTIFICATION



1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Resistance values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

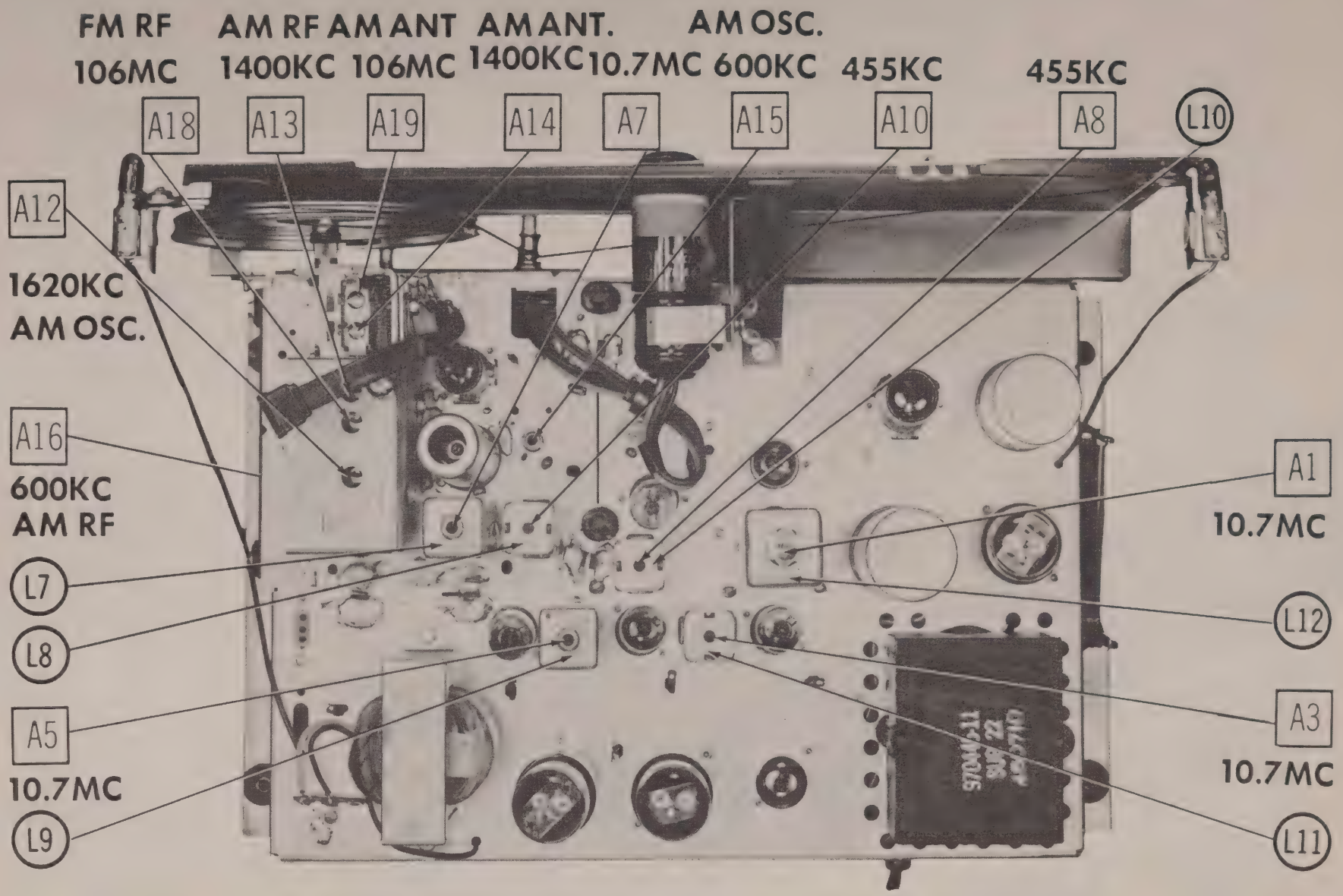
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6CB6	2.4meg	68Ω	.1Ω	0Ω	↑12K	↑100K	0Ω		
V2	6X8	0Ω	18K	↑50K	5Ω	4Ω	2 2Ω	3.9meg	↑150K	↑150K
V3	6BA6	1100Ω	0Ω	0Ω	1Ω	↑2200Ω	↑49K	68Ω		
V4	6AU6	4Ω	0Ω	1Ω	0Ω	↑2200Ω	↑150K	120Ω		
V5	6AU6	100K	0Ω	1Ω	0Ω	↑220K	↑50K	120Ω		
V6	6AL5	9300Ω	8000Ω	0Ω	1Ω	180K	0Ω	150K		
V7	6AV6	10meg	0Ω	1Ω	0Ω	0Ω	530K	↑330K		
V8	6CG7	↑155K	2.7meg	3900Ω	0Ω	.1Ω	↑220K	0Ω	33000	0Ω
V9	6CG7	↑89K	1meg	3500Ω	.1Ω	0Ω	↑34K	85K	30K	0Ω
V10	6V6GT	0Ω	1Ω	↑210Ω	↑2200Ω	470K	TP	0Ω	270Ω	
V11	6V6GT	0Ω	0Ω	↑210Ω	↑2200Ω	470K	TP	.1Ω	270Ω	
V12	6AL7GT	3300Ω	0Ω	↑1200Ω	1.2meg	330K	0Ω ±1.2meg	.1Ω	3300Ω	
V13	5Y3GT	NC	200K(Min)	NC	100Ω	NC	100Ω	NC	200Ω(Min)	

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
↑ MEASURED FROM PIN 8 OF V13
– MEASURED IN "AM" POSITION
NC NO CONNECTION
TP TIE POINT
■ MEASURED FROM PIN 8 OF V9

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

396-7



CHASSIS TOP VIEW INDUCTOR AND ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01mfd	High side to point (A). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference near low frequency end.	DC probe to point (B). Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	"	"	"	DC probe to point (C). Common to chassis.	A2	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
3.	"	High side to point (D). Low side to chassis.	"	"	"	DC probe thru 1 meg to point (A). Common to chassis	A3, A4, A5, A6, A7	Adjust for maximum deflection.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	.01mfd	High side to point (A). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point (C). Low side to chassis.	A2, A1	Adjust A2 so that 10.7MC occurs at center of crossover lines similar to Fig. 1. Adjust A1 for maximum amplitude and symmetry of crossover lines.
2.	"	High side to point (D). Low side to chassis.	"	"	"	Vert. Amp. thru 25K to point (A). Low side to chassis	A3, A4, A5, A6, A7	Adjust for maximum amplitude of response curve similar to Fig. 2. Continue with step 4.

AM ALIGNMENT

Loop should be maintained in the same relative position to chassis as when the receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.

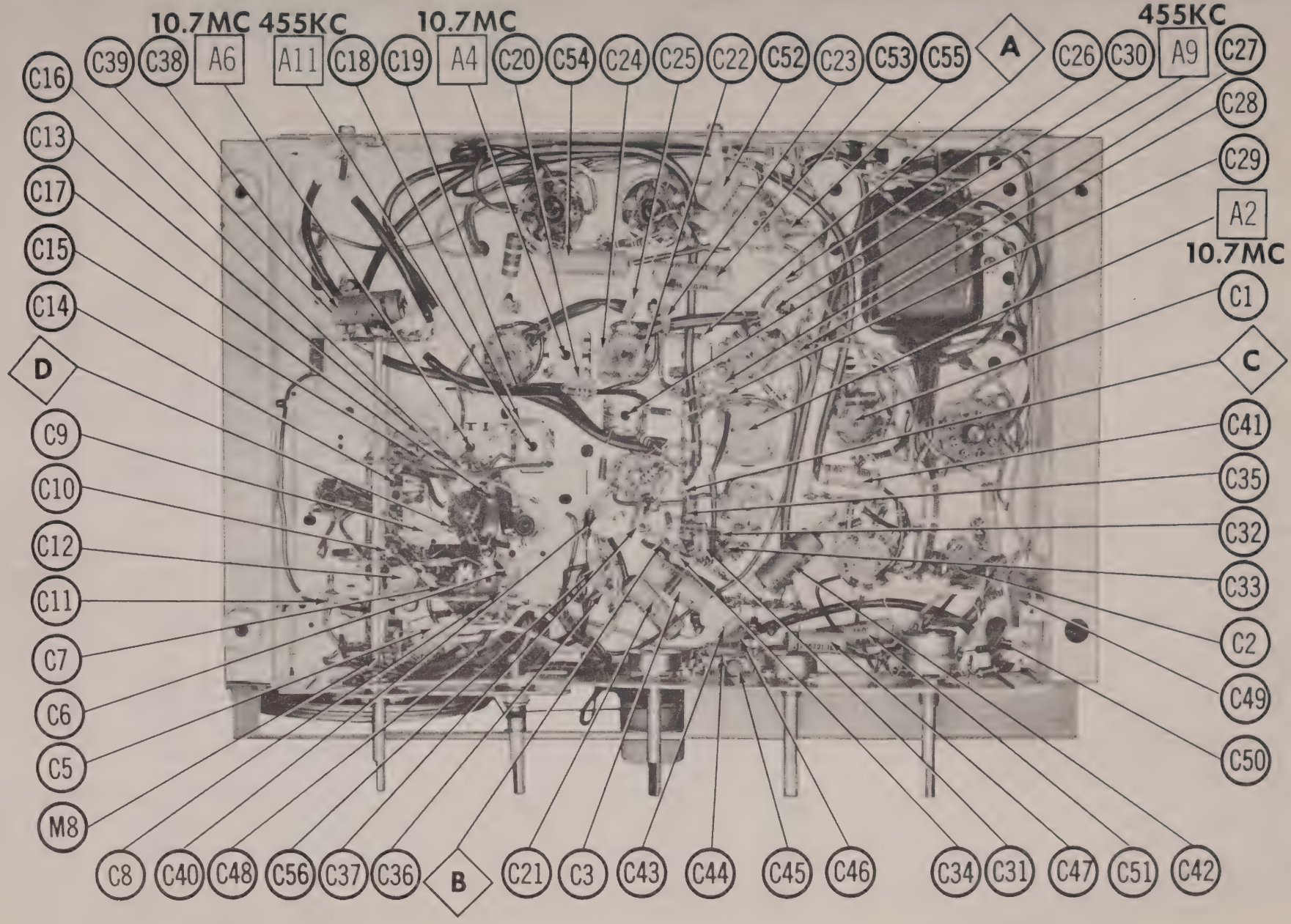
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
4.	.01mfd	High side to point (D). Low side to chassis.	455KC (400% Mod)	AM	Tuning gang fully closed	Across voice coil	A8, A9, A10, A11	Adjust for maximum output.
5.	Direct	High side to "AM" terminal on antenna terminal strip. Low side to chassis.	1620KC	"	Tuning gang fully open	"	A12	"
6.	"	"	1400KC	"	Tune for max. output	"	A13, A14	"
7.	"	"	600KC	"	"	"	A15, A16	Connect a 10K resistor across A13. Rock tuning gang while adjusting A15 for maximum output. Remove 10K resistor and adjust A16 for maximum output. Repeat steps 5, 6 and 7 until no further improvement can be obtained.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	Two 120Ω Carbon Resistors	Across FM antenna terminals with 120Ω in each lead.	90MC (Unmod)	FM	90MC	DC probe to point (A). Common to chassis.	L3	Remove bottom shield. Expand or compress coil turns for maximum deflection. Replace bottom shield.
9.	"	"	106MC	"	Tune for max. deflection.	"	A18, A19	Adjust for maximum deflection.
10.	"	"	90MC	"	"	"	L2, L1	Expand or compress coil turns for maximum deflection. Repeat steps 8, 9 and 10 until no further improvement can be obtained.

FIG. 1

FIG. 2



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM-AM RF Amplifier	6CB6	
V2	FM AM Mixer-FM AM Osc.	6X8	
V3	FM AM IF Amp.	6BA6	
V4	2nd FM IF Amp.	6AU6	
V5	FM Limiter	6AU6	
V6	Ratio Detector	6AL5	
V7	AM Det.-AVC-Record Amp.	6AV6	

ITEM No.	USE	TYPE	NOTES
V8	AF Amplifier	6CG7	
V9	AF Amp.-Phase Inv.	6CG7	
V10	Output	6V6GT	
V11	Output	6V6GT	
V12	Tuning Indicator	6AL7GT	
V13	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	RCA VICTOR PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	◓ 35	400	101414	AFH4-78-10	D0650	FP429	TMQ-99	Q-385	R2589*
B	■ 35	400							
C	▲10	350							
D	20	25							
C2A	◓ 20	400	101357	AFH4-76	D0624	FP396.1 TC22		Q-305 MMT-0210	R2505 *
B	■ 20	400							
C	▲40	25							
D	10	25							
C3	2	50	79181	PRS50V2	BBR2-50	TC302	TD-2-50	MT-0502	TVA-1301
C4	8	10VAC	100509	PRS-AC10V8	BBR16-90 † BBR16-90	TC108	TD-16-150 † TD-16-150	MT-1516 † MT-1516	R2201*

† Connect Negative Leads Together
* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RCA VICTOR PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	220		71920	N750-SI220	TCN-220	CTA6T22U	TC7-220		5TCU-T22	10% N750
C6	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C7	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C8	1000		77084	EF-001	MFT-1000				503C-D1	
C9	220		71920	N750-SI220	TCN-220	CTA6T22U	TC7-220		5TCU-T22	10% N750
C10	33		76739	NP0-SI33	TCZ-33	CTA6Q33C	TC0-33	ZT-5533	5TCC-Q33	10% NP0
C11	1000		77084	EF-001	MFT-1000				503C-D1	
C12	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C13	4700		39668	1467-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C14	10		33098		TCN-10		TC7-10			5% N750
C15	12		76349							10% N330
C16	47		39042	N750-SI47	TCN-47	CTA6Q47U	TC7-47	NT-5447	5TCC-Q47	10% N750
C17	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C18	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C19	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C20	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C21	047	200	73558							10%
C22	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C23	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C24	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C25	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C26	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C27	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C28	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C29	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C30	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C31	100		103166	SI100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C32	470		76992	1464-00047	D6-471	5R5T47	ED-470		MS-347	10%
C33	470		76992	1464-00047	D6-471	5R5T47	ED-470		MS-347	10%
C34	100		103166	SI100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C35	0012	200	103332							10%
C36	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	RCA VICTOR PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C37	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C38	.1	400	78922					GEM-401		10%
C39	100000								TG-P10	1
C40	10000		73960	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C41	.01	400	73561					GEM-1611		10%
C42	.1	400	78922					GEM-401		10%
C43	470		75198		D6-471	5R5T47	ED-470		MS-347	10%
C44	.001	200	77533							10%
C45	.01	200	101000	P288N-01	D6-103	CUB2S1	GP-10000	GEM-411	2TM-S1	
C46	.0047	200	101721	P288N-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C47	.0082	400	104335					GEM-6282		
C48	.1	400	78922					GEM-401		10%
C49	.022	200	79343							10%
C50	.047	200	73558							10%
C51	.047	400	73558							10%
C52	.047	400	73553							10%
C53	.047	400	73553							10%
C54	.047	400	73553							10%
C55	220		77460	NP0-SI220	D6-221	L10T22	ED-220		MS-322	10%
C56	4700		73473	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5 HK-D47	

①Some versions may use 10000mmf in this application (Part# 73960)

CONTROLS

ITEM No.	RATING RESIST-ANCE	RATING WATTS	RCA VICTOR PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	104599	BT-160			PF55DT1683	Volume, Tap ⓐ 100K ⓐ 200 K
B	Shaft			Not Req.			Not Req.	
C	Switch			KB-1			Not Req.	
R2A	1meg	½	103915	B-70	A47-1meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	500K	½	103916	B-59	A47-500K-S	Q11-133	U50	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	RCA VICTOR PART No.	NOTES
R4	2.2meg		502522	
R5	10Ω		502010	
R6	3300Ω		502233	
R7	10K		502310	
R8	100K		502410	
R9	1000Ω		502210	
R10	68Ω		502068	
R11	3.9meg		502539	
R12	330Ω		502133	
R13	1000Ω		502210	
R14	150K		502415	
R15	18K		502318	
R16	47K	1	502347	
R17	47K		502347	
R18	1000Ω		502210	
R19	68Ω		502068	
R20	100K		502410	
R21	150K		502415	
R22	1000Ω		502210	
R23	120Ω		502112	
R24	100K		502410	
R25	220K		502422	
R26	220K		502422	
R27	47K	1	502347	
R28	22K		502322	
R29	120Ω		502112	

ITEM No.	RATING OHMS	RATING WATT	RCA VICTOR PART No.	NOTES
R30	100Ω		502110	
R31	1meg		502510	
R32	100K		502410	
R33	82K		502382	
R34	1200Ω		502212	
R35	6800Ω		502268	
R36	2200Ω		502222	
R37	6800Ω		502268	
R38	270K		502427	
R39	390K		502439	
R40	2.2meg		502522	
R41	2.2meg		502522	
R42	10meg		502610	
R43	150K		502415	
R44	150K		502415	
R45	4700Ω		502247	
R46	2.7meg		72788	
R47	120K		502412	
R48	22K		502322	
R49	3900Ω		502239	
R50	2.2meg		502522	
R51	220K		502422	
R52	22K		502322	
R53	1meg		502510	
R54	22K		502322	
R55	4700Ω		502247	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	RCA VICTOR PART No.	NOTES
R56	8200Ω		502282	
R57	220K		502422	
R58	3300Ω		502233	
R59	1meg		502510	
R60	82K		502382	
R61	5600Ω		502256	
R62	8200Ω		502282	
R63	56K		502356	
R64	22K		502322	
R65	27K		502327	
R66	4700Ω		502247	
R67	2700Ω		502227	
R68	22K		502322	
R69	470K		502447	
R70	470K		502447	
R71	270Ω	2	522127	
R72	3300Ω		502233	
R73	2200Ω	2	522222	
R74	1200Ω	2	522212	
R75	15K		502315	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA RCA VICTOR PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ .92A	720VCT ⓐ .110A	5V ⓐ2A	103335						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V ⓐ 5.2A									

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA RCA VICTOR PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	8700Ω CT	6-8Ω Tap ⓐ 3-4Ω	104337	Z1013	A2905		A-3880	26S59	S-57Z ①	①Drill new mounting hole.

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA RCA VICTOR PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	12"	PM	6-8Ω	100897① ②	12A10PA①	①Parallel and Phase. Used in Model SHF-3
SP2	12"	PM	6-8Ω	100897① ②	12A10PA①	②Used in Model SHF-3D
SP3	3 1/2"	PM	6-8Ω	100465①	3A15TZ6.6①	
SP4	3 1/2"	PM	6-8Ω	100465①	3A15TZ6.6①	
	3 1/2"	PM	6-8Ω	105395②		
	3 1/2"	PM	6-8Ω	105395②		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA RCA VICTOR PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil	103501					
L2	FM RF Coil	76353					
L3	FM Osc. Coil	77973					
L4	AM Loop Ant.	100534					Note 1
L5	AM RF Coil	76338	14-1076				
L6	AM Osc. Coil	76337	14-1077	BC-393	71-Osc		
L7	1st FM IF	75559	16-3471	FM-251	1451		
L8	1st AM IF	76335	16-6758	BC-352	12-C1		
L9	2nd FM IF	76329	16-3472	FM-251	1451		
L10	2nd AM IF	76328	16-6770	BC-355	12-C2		

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L11	3rd FM IF	77939					
L12	Ratio Det.	77938	17-3488	FM-252	1453		
L13	Fil. Choke	71942	19-1000	BC-561	4602		1.07 Microhenries
L14	Fil. Choke	71942	19-1000	BC-561	4602		1.07 Microhenries
L15	Fil. Choke	71942	19-1000	BC-561	4602		1.07 Microhenries
L16	Fil. Choke	76351	19-1005	BC-566	4612		9 Microhenries
L17	Fil. Choke	76351	19-1005	BC-566	4612		9 Microhenries
L18	Line Choke	103599					25 Microhenries -Note 2
L19	Line Choke	103599					25 Microhenries - Note 2

Note 1. Part # 105685 used in Model SHF-3D
Note 2. Used only in early versions of Model SHF-3

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA RCA VICTOR PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M1	103422	89-TB		56	PT-2	

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA RCA VICTOR PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2	103423	† S-61 or †♦ S-61SD or ♦ S-61D	† W75TPS or †♦ W75DS or ♦ W75TPD	†Jewel ♦Diamond

MISCELLANEOUS

ITEM No.	PART NAME	RCA VICTOR PART No.	NOTES
M3	Dial Light	31480	#47
M4	Dial Light	31480	#47
M5	Jewel Light	31480	#47
M6	Knob Light	31480	#47
M7	Tuning Cap	103364	6 Gang (AM Sections: Ant. 30-587 mmf, RF20-247mmf, Osc. 19-165mmf)
M8	Switch	103917	Function (Rotary Wafer Type)
M9	Switch	104363	Stereo-Mark (Slide Type)
M10	Phono Motor	102541	(Stamped 936173-1)
	Phono Motor	102900	(Stamped 971592-1 or 972592-2)
	Phono Motor	102919	(Stamped 971584-1)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Escutcheon	103920	Tuning Dial
Escutcheon	104174	Control Knob, Model SHF-3
Escutcheon	105791	Control Knob, Model SHF-3D
Escutcheon	104175	Stereo Switch
Knob	103923	Function Switch
Knob	103924	Tone Control
Knob	103921	Tuning
Knob	103922	On-Off-Volume
Dial Scale	103919	
Dial Pointer	103910	

WIRING DATA

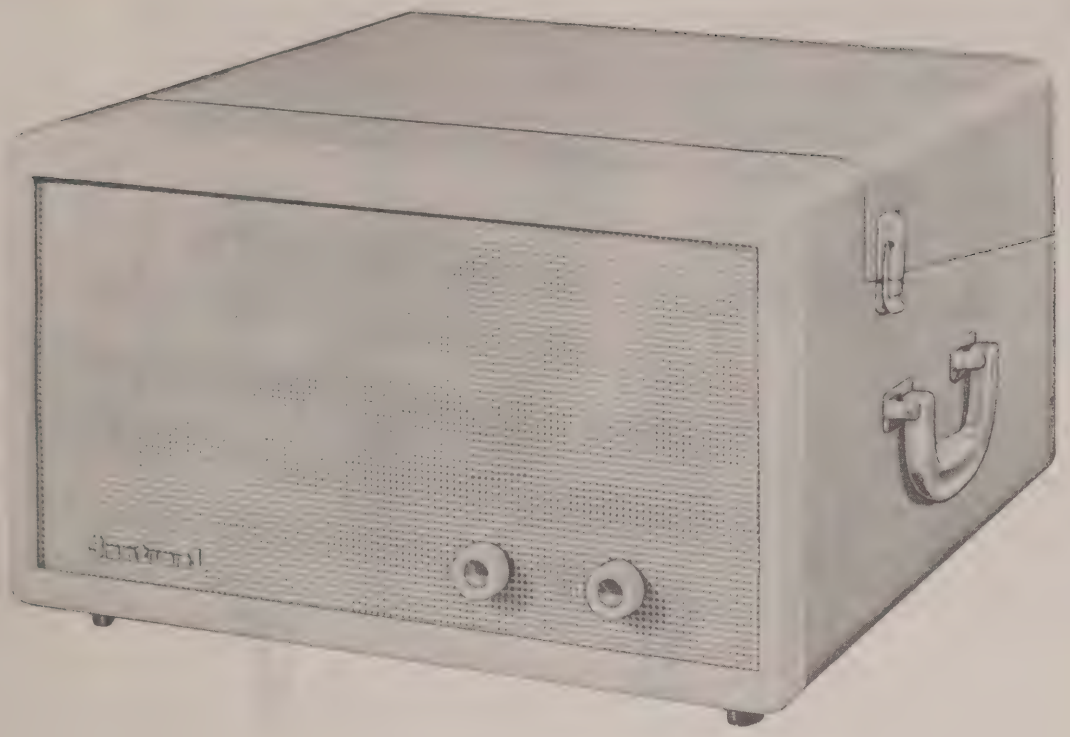
General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

SENTINEL
CHASSIS AMP-154AA

SENTINEL
CHASSIS AMP-154AA



SENTINEL
CHASSIS AMP-154AA

TRADE NAME	Sentinel Chassis AMP-154AA
MANUFACTURER	Sentinel Radio Co., 2131 Bueter Road, Fort Wayne 4, Indiana
TYPE SET	AC Operated Audio Amplifier
TUBES (Four)	Types 12AX7 AF Amp.-Phase Inv., (2) 35C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC - 50/60 Cycles RATING .30 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

G741R

PARTS LIST AND DESCRIPTIONS

SENTINEL
CHASSIS AMP-154AA

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inverter	12AX7	
V2	Output	35C5	
V3	Output	35C5	
V4	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SENTINEL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■40	150	270023-24	AFH3-10	CO090	FP311.5	TMT-9	T-045	TVL-3438
B	▲40	150							
C	20	150							

FIXED CAPACITORS

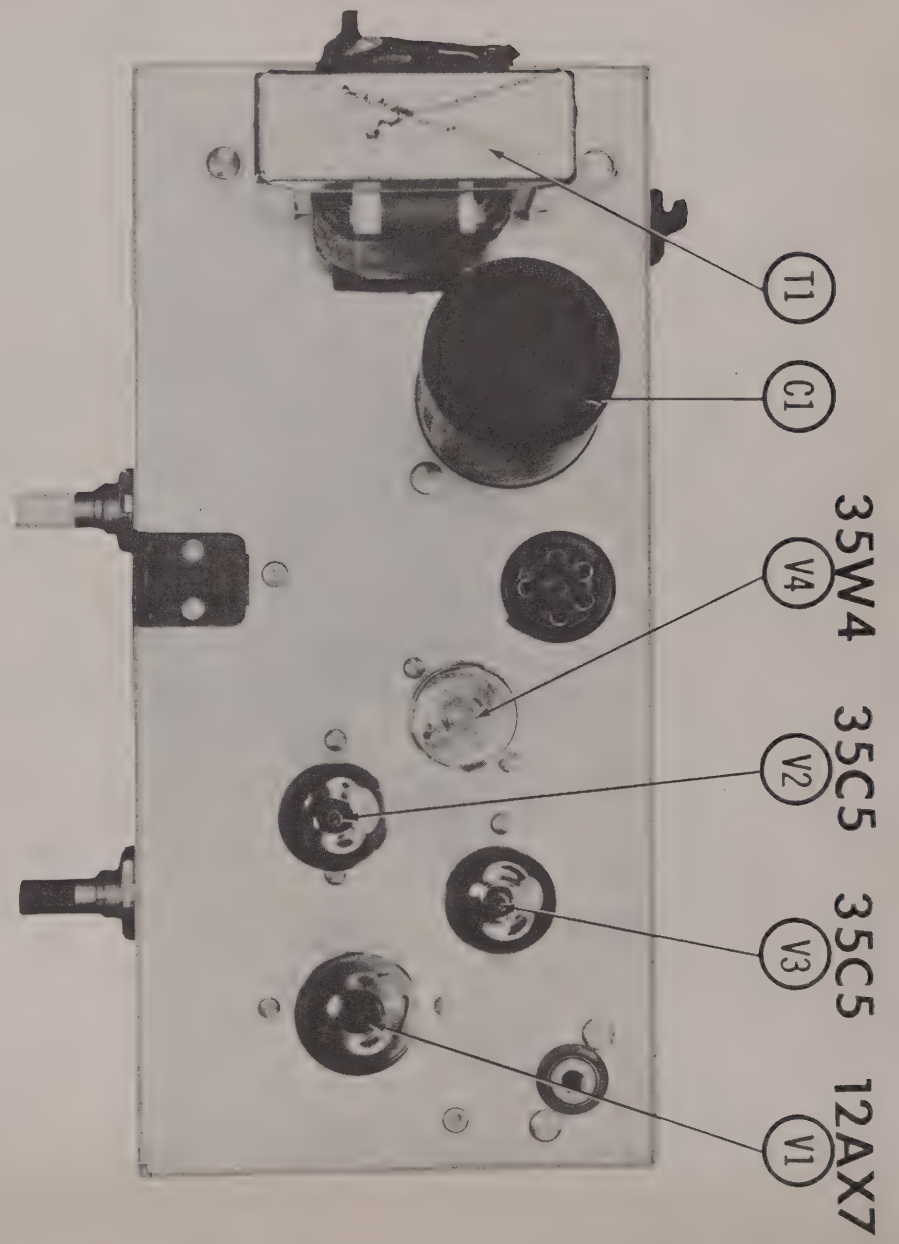
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SENTINEL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	600	250201-11	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C3	2000		250218-20	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C4	2000		250218-20	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C5	.068	200	250202-12	P288N-068		CUB4S68		GEM-4168	4TM-S68	
C6	.1	200	250202-13	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C7	10000		250175-2	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	
C8	10000		250175-2	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	
C9	5000		250175-30	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C10	1.0	100	270172-9	P288N-1.0		CUB2W1		GEM-21	2TM-M1	
C11	1.0	100	270172-9	P288N-1.0		CUB2W1		GEM-21	2TM-M1	
C12	.047	600	250201-11	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C13	33		250187-47	1468-000033	D6-330	1W5Q33	GP-33	UC-5433	1FM-433	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SENTINEL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	3.3Meg	½	220131-6				UDT303	Volume-Tap ⓐ 300K & 1.5Meg
B	Shaft						Not Req.	
R2A	1Meg	½	220123-23	B-70-S	A47-1Meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	SENTINEL PART No.	NOTES
R3	100K		230104-86	
R4	220K		230104-90	
R5	470Ω		230104-58	
R6	12K			Note 1
R7	220K		230104-90	
R8	470Ω		230104-58	Note 2
R9	470K		230104-94	
R10	470K		230104-94	

ITEM No.	RATING OHMS	RATING WATT	SENTINEL PART No.	NOTES
R11	1500Ω		230104-64	
R12	100Ω	1	230105-50	
R13	10K		230104-74	
R14	68K		230104-84	
R15	68K		230104-84	
R16	6800Ω		230104-72	
R17	33Ω		230104-44	
R18	68K		230104-84	

Note 1. Some versions may use 22K in this application (Part #230104-78).
Note 2. Some versions may use 3300Ω in this application (Part #230104-68).

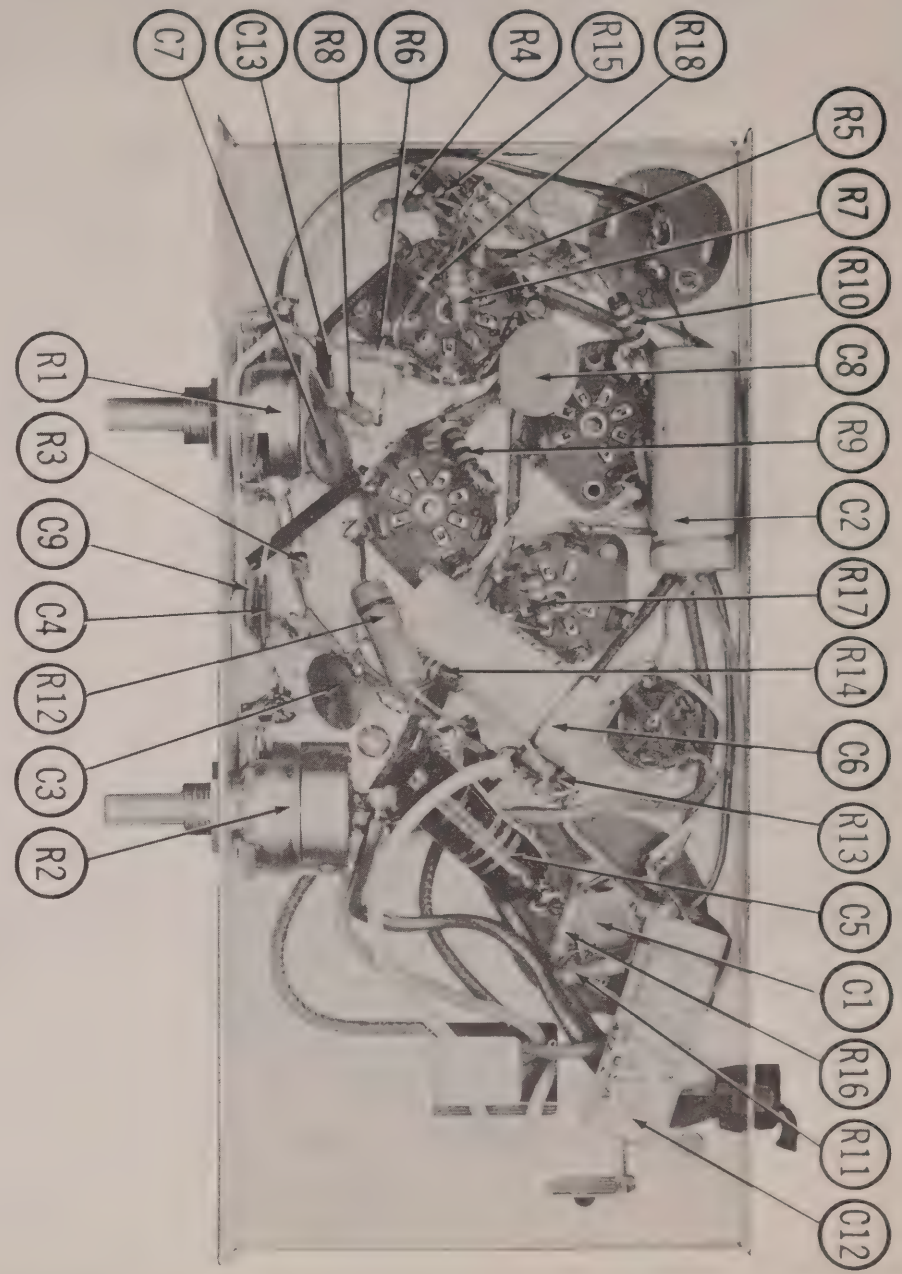
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA SENTINEL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3750Ω	3-4Ω	320265-1						

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA SENTINEL PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	6"	PM	3-4Ω	583792-1		
SP2	4"	PM	3-4Ω	583779-1		

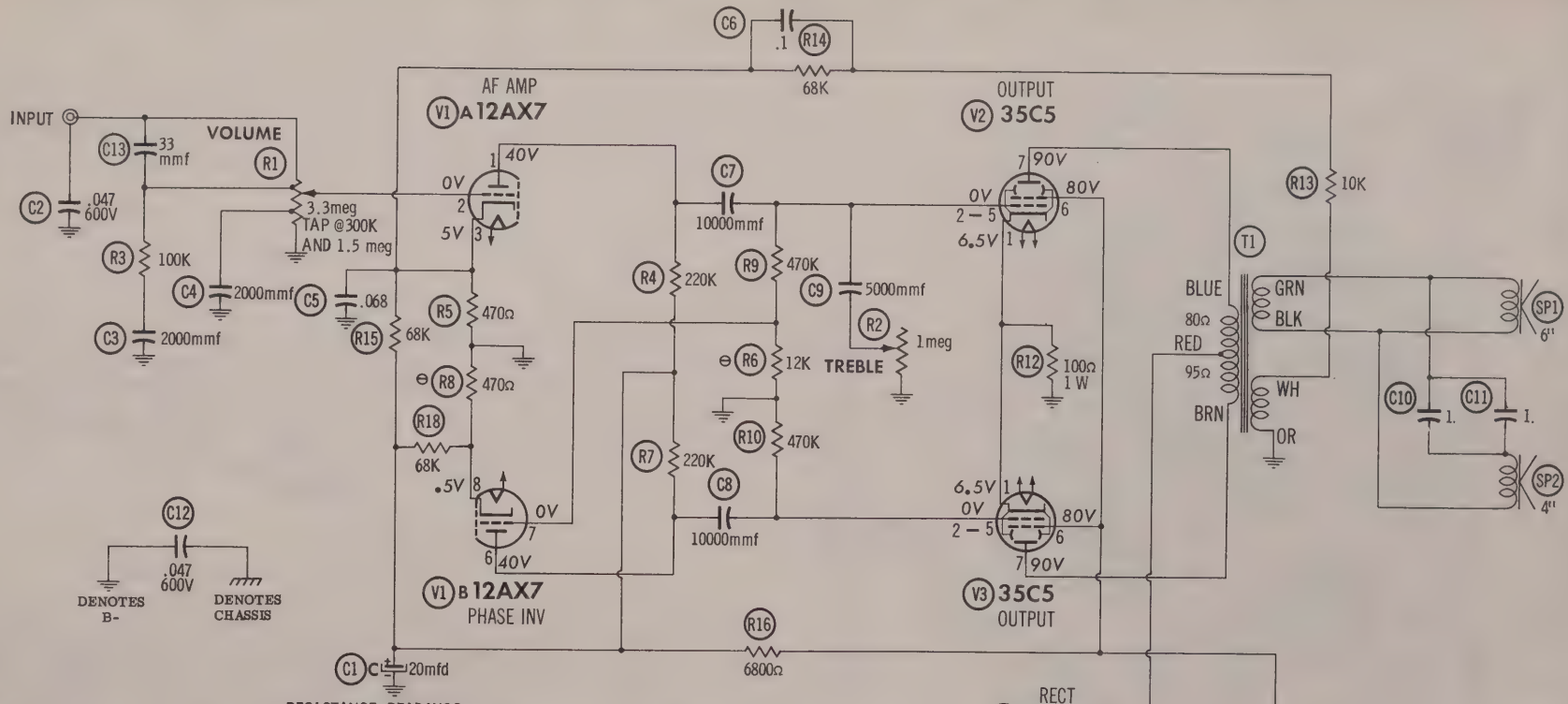
CHASSIS—BOTTOM VIEW



SENTINEL
CHASSIS AMP-154AA

FOLDER 8

SENTINEL
CHASSIS AMP-154AA



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†230K	0Ω	470Ω	0Ω	12Ω	†230K	12K	470Ω	6Ω
V2	35C5	100Ω	480K	12Ω	45Ω	480K	†1500Ω	†80Ω		
V3	35C5	100Ω	470K	45Ω	80Ω	470K	†1500Ω	†95Ω		
V4	35W4	NC	NC	80Ω	115Ω	110Ω	110Ω	10K		

† MEASURED FROM PIN 7 OF V4.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

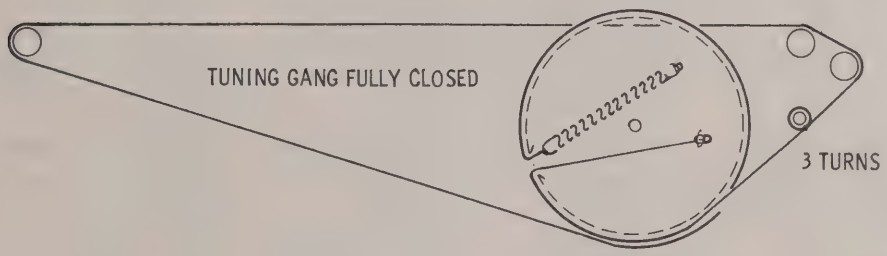
EIA MEMBER

SHERWOOD MODEL S-2000

SHERWOOD MODEL S-2000

SHERWOOD MODEL S-2000

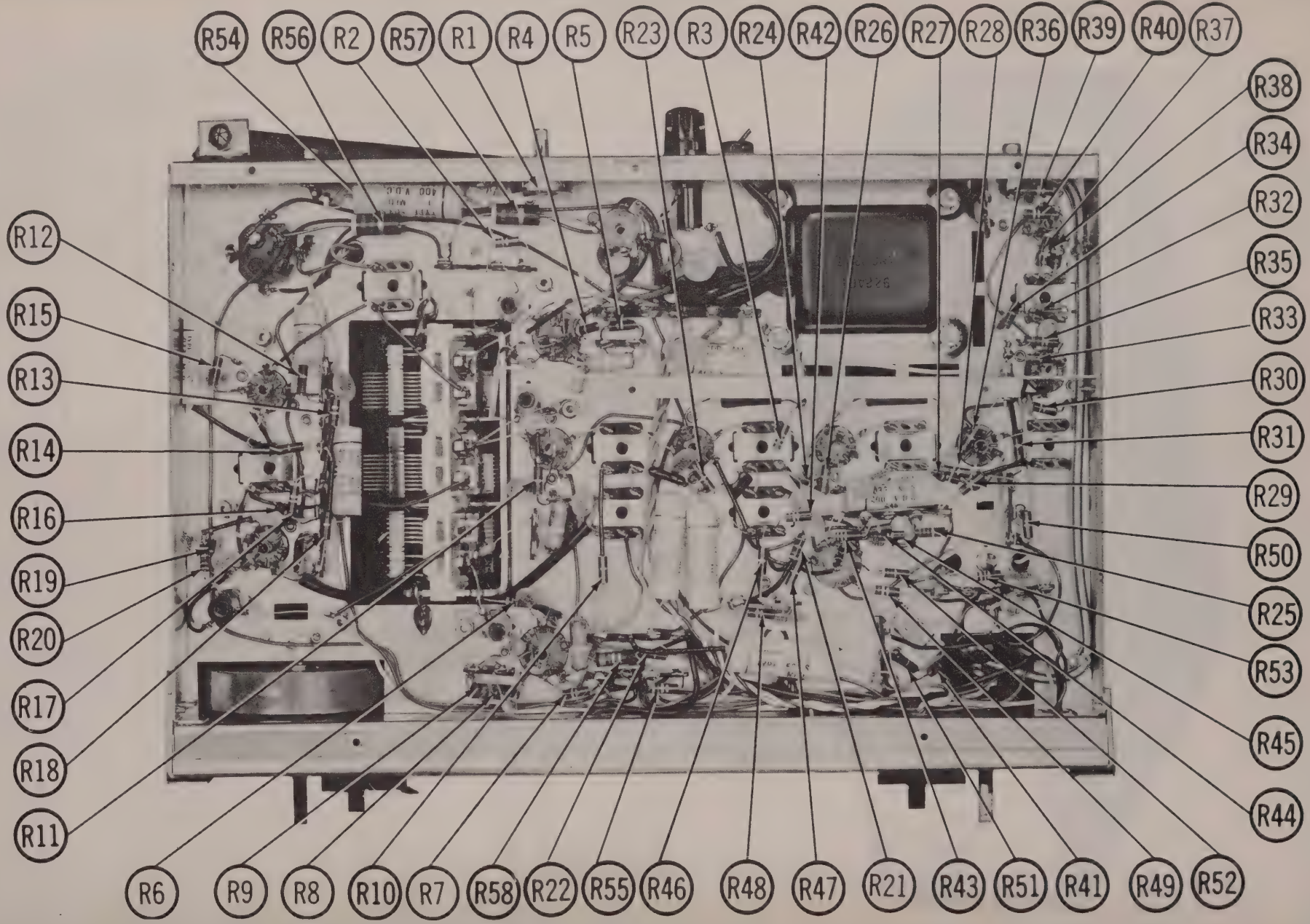
TRADE NAME	Sherwood Model S-2000		
MANUFACTURER	Sherwood Electronic Lab., Inc., 2802 W. Cullom Ave., Chicago 18, Illinois		
TYPE SET	AC Operated FM-AM Tuner		
TUBES	Thirteen		
POWER SUPPLY	110-120 Volts AC-50/60 Cycles	RATING	.45 Amp. @ 117 Volts AC (47 Watts)
TUNING RANGE—BROADCAST	530 - 1650KC	FREQ. MOD.	87.5 - 108.5MC



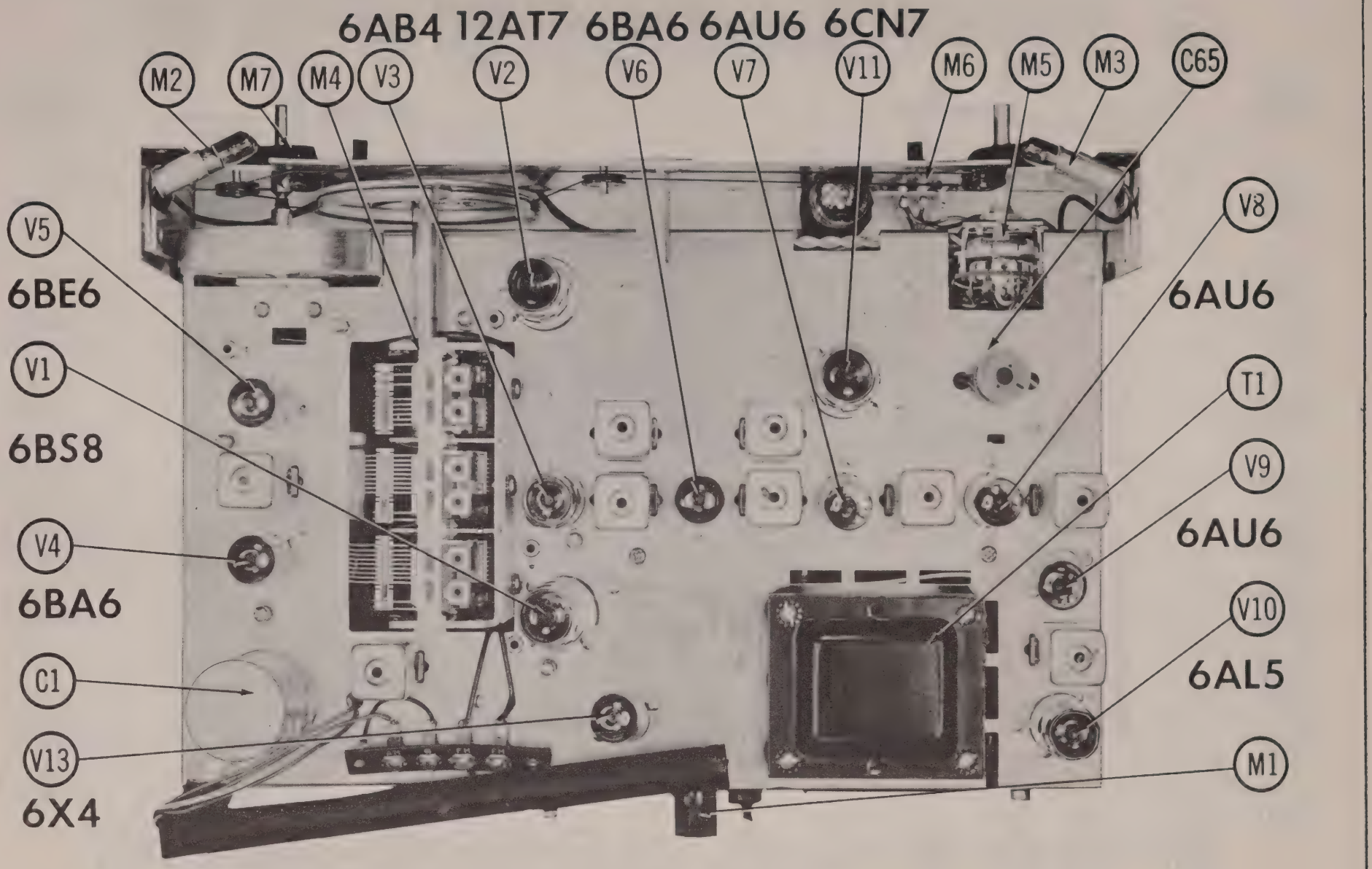
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H276

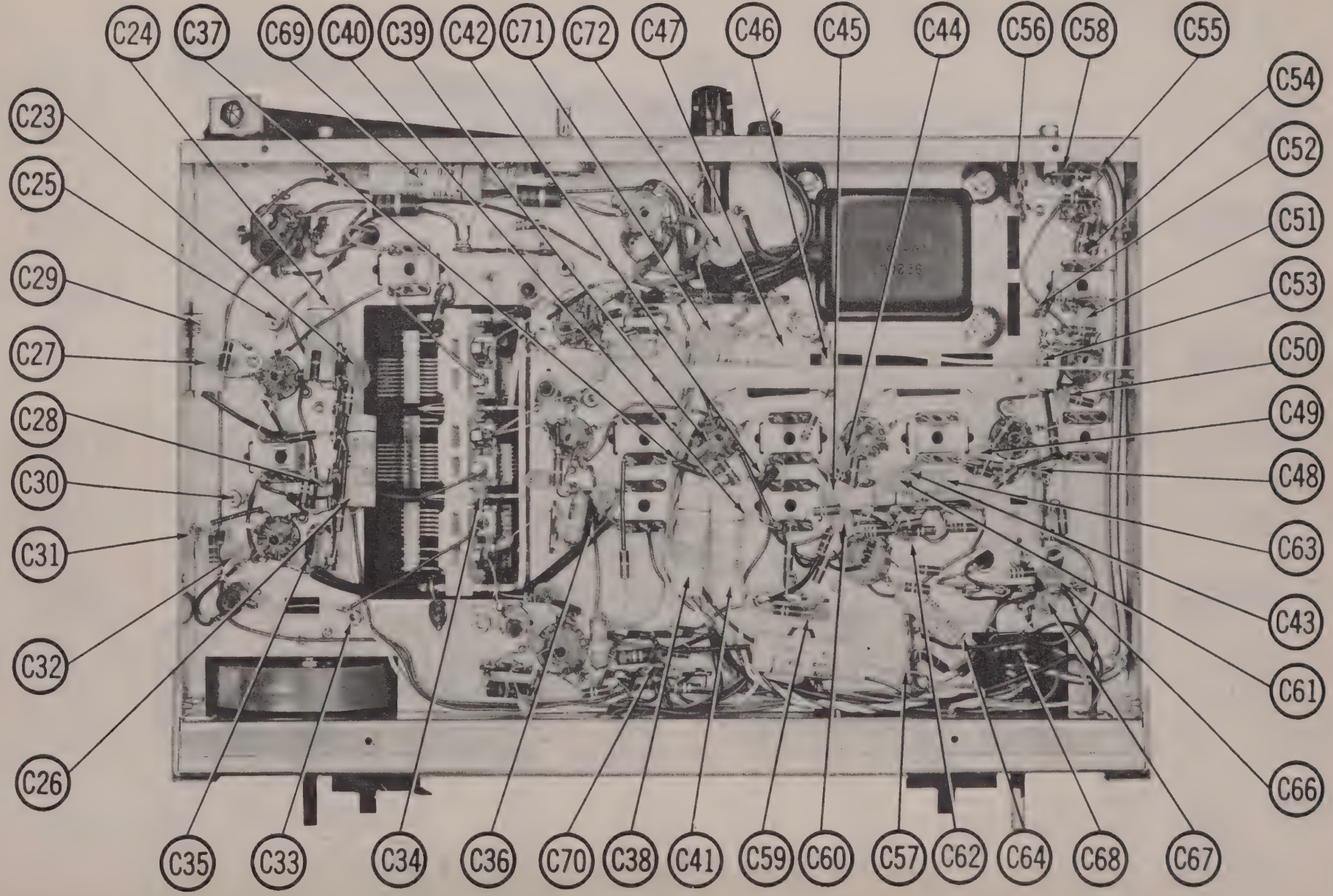
the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



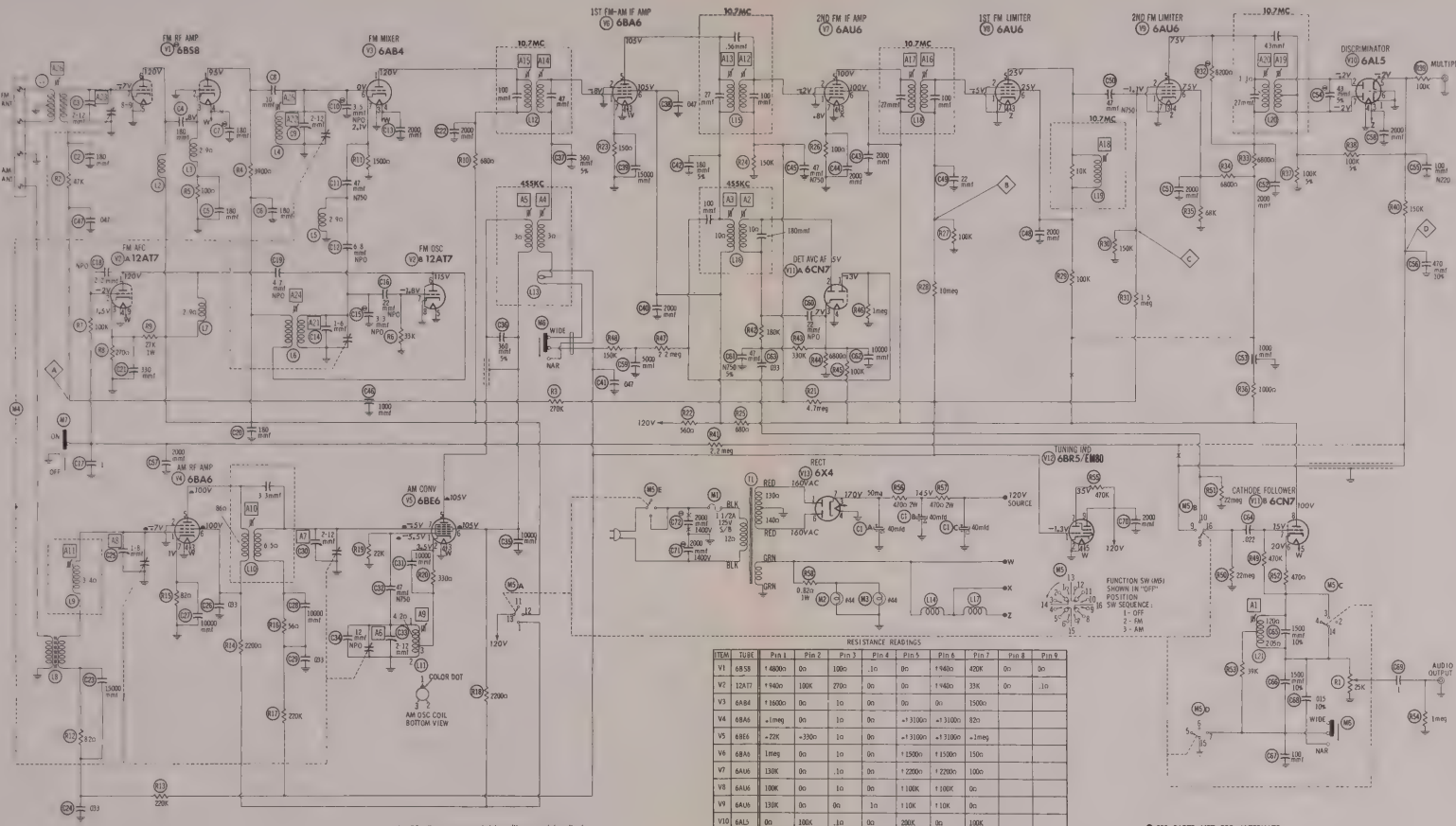
CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATION



CHASSIS TOP VIEW
MODEL S-2000
SHERWOOD



CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION


FM RF AMP V1 6BS8
FM MIXER V2 6AB4
1ST FM-AM IF AMP V6 6BA6
2ND FM IF AMP V7 6AU6
1ST FM LIMITER V8 6AU6
2ND FM LIMITER V9 6AU6
DISCRIMINATOR V10 6AL5
MULTIPLEX
FM AFC V3 A 12AT7
FM OSC V3 B 12AT7
AM RF AMP V4 6BA6
AM CONV V5 6BE6
DET AVC AF V11 A 6CN7
RECT V11 6X4
TUNING IND V12 6BR5/EM80
CATHODE FOLLOWER V11 B 6CN7
AUDIO OUTPUT
10.7MC
455KC
WIDE
NAR
120V SOURCE
COLOR DOT
AM OSC COIL BOTTOM VIEW
FUNCTION SW (M5) SHOWN IN "OFF" POSITION
SW SEQUENCE: 1 - OFF 2 - FM 3 - AM

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BS8	↑4800Ω	0Ω	100Ω	.1Ω	0Ω	↑940Ω	420K	0Ω	0Ω
V2	12AT7	↑940Ω	100K	270Ω	0Ω	0Ω	↑940Ω	33K	0Ω	.1Ω
V3	6AB4	↑1600Ω	0Ω	1Ω	0Ω	0Ω	0Ω	1500Ω		
V4	6BA6	←1meg	0Ω	1Ω	0Ω	←3100Ω	←3100Ω	82Ω		
V5	6BE6	←22K	←330Ω	1Ω	0Ω	←3100Ω	←3100Ω	←1meg		
V6	6BA6	1meg	0Ω	1Ω	0Ω	↑1500Ω	↑1500Ω	150Ω		
V7	6AU6	130K	0Ω	.1Ω	0Ω	↑2200Ω	↑2200Ω	100Ω		
V8	6AU6	100K	0Ω	1Ω	0Ω	↑100K	↑100K	0Ω		
V9	6AU6	130K	0Ω	0Ω	1Ω	↑10K	↑10K	0Ω		
V10	6AL5	0Ω	100K	.1Ω	0Ω	200K	0Ω	100K		
V11	6CN7	750K	460K	6800Ω	0Ω	.1Ω	14K	480K	↑220Ω	NC
V12	EM80	1meg	0Ω	↑940Ω	0Ω	.1Ω	NC	↑470K	↑940Ω	↑940Ω
V13	6X4	130Ω	NC	.1Ω	0Ω	0Ω	140Ω	20K(Mini)		

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
↑ MEASURED FROM PIN 7 OF V3
← MEASURED IN "AM" POSITION
NC NO CONNECTION

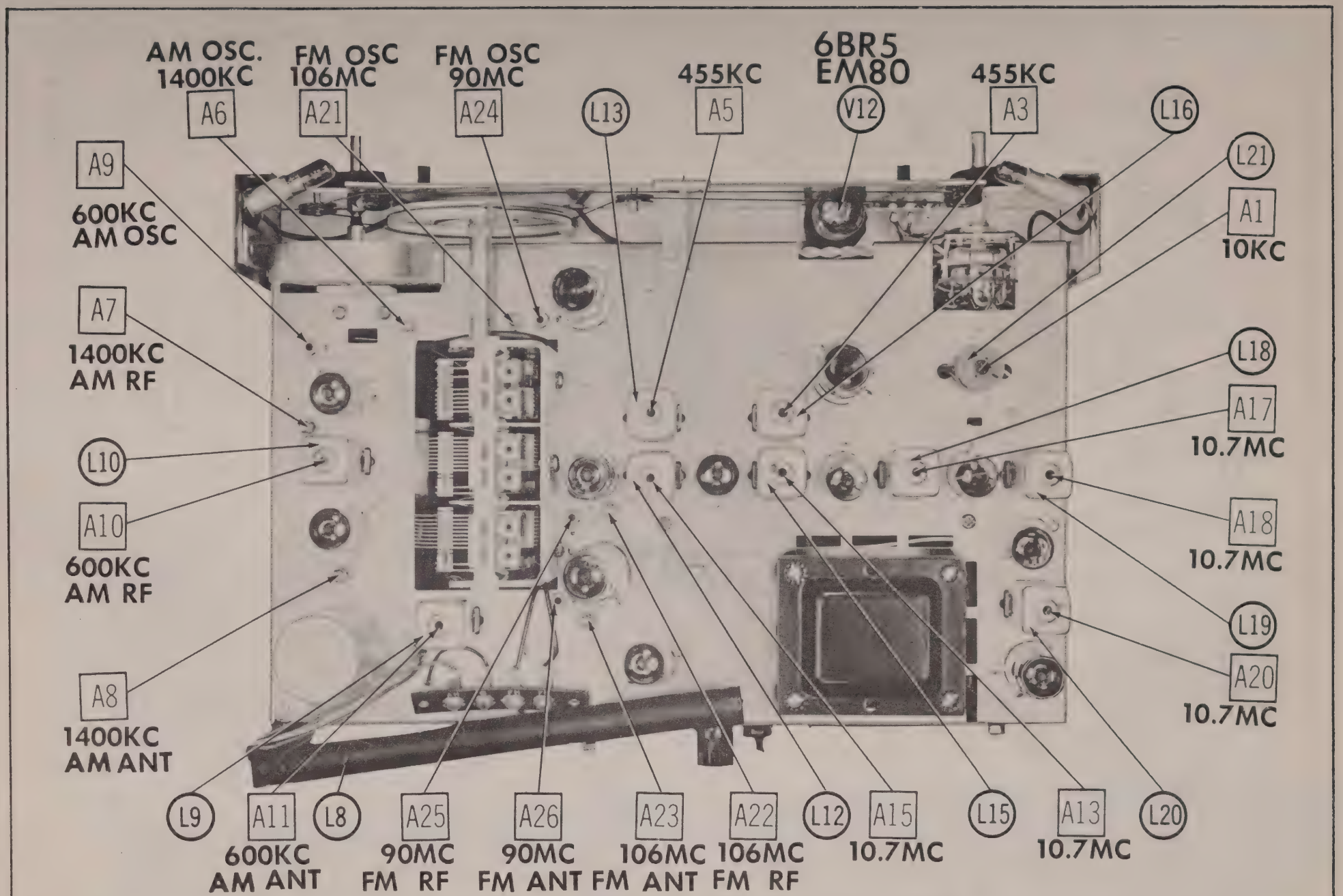
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

396-9



CHASSIS-TOP VIEW–ALIGNMENT IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.02mfd	High side to pin 7 (grid) of 6CN7 (V11). Low side to chassis.	10KC	AM (Wide Band)	Point of non-interference	AC probe to audio output jack. Common to chassis.	A1	Adjust for zero reading.
2.	.01mfd	High side to pin 7 (grid) of 6BE6 (V5). Low side to chassis.	455KC (400~ Mod)	AM (Narrow Band)	Tuning gang fully open	"	A2, A3, A4, A5	Adjust for maximum deflection.
3.	220mmf	Across AM antenna terminals.	1400KC	AM	1400KC	"	A6, A7, A8	Adjust for maximum deflection.
4.	"	"	600KC	"	600KC	"	A9, A10, A11	Adjust for maximum deflection. Repeat steps 3 and 4 until no further improvement can be obtained.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR & VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.01mfd	High side to pin 6 (grid) of 6AB4 (V3). Low side to chassis	10.7MC (Unmod)	FM AFC off	Point of non-interference	DC probe to point (A). Common to chassis.	A12, A13, A14, A5	Adjust for maximum deflection.
6.	"	"	"	"	"	DC probe to point (B). Common to chassis.	A16, A17	"
7.	"	"	"	"	"	DC probe through 100K to point (C). Common to chassis	A18	"
8.	"	"	"	"	"	DC probe to point (D). Common to chassis.	A19	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
9.	"	"	"	"	"	"	A20	Adjust for maximum deflection.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR & OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.01mfd	High side to pin 6 (grid) of 6AB4 (V3). Low side to chassis.	10.7MC (450KC Swp)	FM AFC off	Point of non-interference	Vert. Amp. to point (A). Low side to chassis.	A12, A13, A14, A15	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
6.	"	"	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A16, A17	"
7.	"	"	"	"	"	Vert. Amp. to point (C). Low side to chassis.	A18	"
9.	"	"	"	"	"	Vert. Amp. to point (D). Low side to chassis.	A19	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2.
9.	"	"	"	"	"	"	A20	Adjust for maximum amplitude and straightness of crossover lines similar to Fig. 2.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across FM antenna terminals	106MC	FM AFC off	Point of non-interference	AC probe to audio output jack. Common to chassis	A21, A22, A23	Adjust for maximum deflection.
11.	"	"	90MC	"	"	"	A24, A25, A26	Adjust for maximum deflection. Repeat steps 10 and 11 until no further improvement can be obtained.

FIG. 1

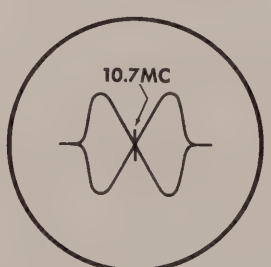
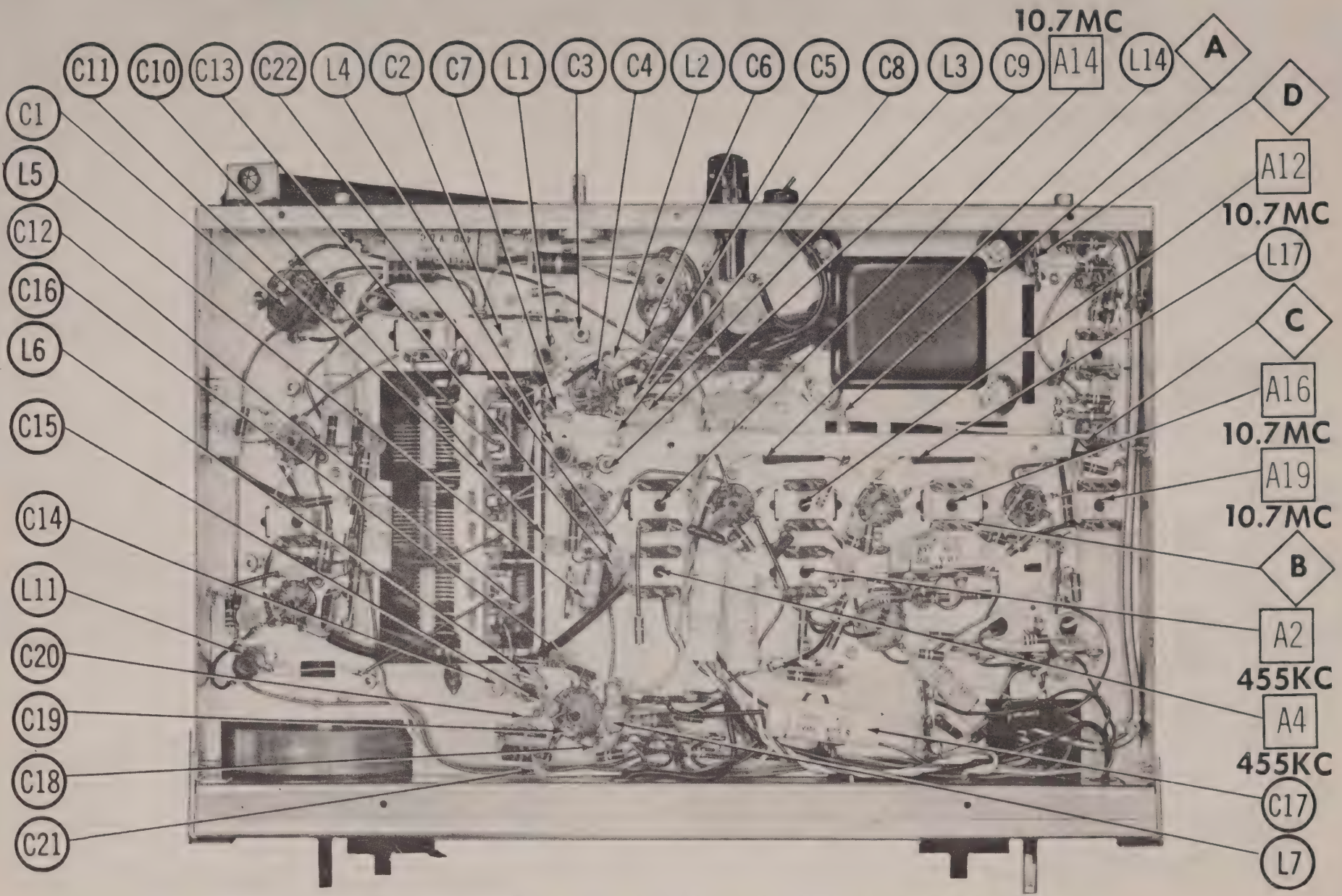


FIG. 2



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amplifier	6BS8	Note 1
V2	FM Osc. - AFC	12AT7	
V3	FM Mixer	6AB4	
V4	AM RF Amplifier	6BA6	
V5	AM Converter	6BE6	
V6	FM AM IF Amplifier	6BA6	
V7	2nd FM IF Amplifier	6AU6	

ITEM No.	USE	TYPE	NOTES
V8	1st FM Limiter	6AU6	
V9	2nd FM Limiter	6AU6	
V10	Discriminator	6AL5	
V11	AM Det. - AVC - Cath. Follower	6CN7	
V12	Tuning Indicator	6BR5/EM80	
V13	Rectifier	6X4	

Note 1. Alternate type 6CH7/6BZ7

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SHERWOOD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	350							R2478 *
B	▲40	350							
C	■40	350							

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SHERWOOD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	180			SI 180	DD-181	L10T18	ED-180		5GA-T18	
C3	2-12									
C4	180			SI 180	DD-181	L10T18	ED-180		5GA-T18	
C5	180			SI 180	DD-181	L10T18	ED-180		5GA-T18	
C6	180			SI 180	DD-181	L10T18	ED-180		5GA-T18	
C7	180			SI 180	DD-181	L10T18	ED-180		5GA-T18	①
C8	10			SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C9	2-12									
C10	3.5			NPO-DI 3.3		C10V33C	TCO-3.3	ZT-5533	5TCCB-V33	② NPO
C11	47			N750-DI 47	TCN-47	C10Q47U	TC7-47	NT-5447	5TCU-Q47	N750
C12	6.8			NPO-DI 6.8	TCZ-6R8	C10V68C	TCO-6.8	ZT-5568	5TCCB-V68	NPO
C13	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C14	1-6				829-7		532-B			
C15	3.3			NPO-DI 3.3	TCZ-3R3	C10V33C	TCO-3.3	ZT-5533	5TCCB-V33	② NPO
C16	22			NPO-DI 22	TCZ-22	C10Q22C	TCO-22		5TCC-Q22	NPO
C17	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C18	2.2			NPO-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	NPO
C19	4.7			NPO-DI 4.7	TCZ-4R7	C10V47C	TCO-4.7	ZT-5547	5TCCB-V47	NPO
C20	180			SI 180	DD-181	L10T18	ED-180		5GA-T18	
C21	330			BPD-00033	DD-331	L10T33	ED-330	UC-5333	5GA-T33	
C22	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C23	15000			BPD-015	DD16-153	BYA10S15	ED-015		5HK-S15	
C24	.033	400		P488N-033	DF-303	CUB6S33		GEM-4133	6TM-S33	
C25	1-8						532-B			
C26	.033	400		P488N-033	DF-303	CUB6S33		GEM-4133	6TM-S33	
C27	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C28	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C29	.033	400		P488N-033	DF-303	CUB6S33		GEM-4133	6TM-S33	
C30	2-12									
C31	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C32	47			N750-DI 47	TCN-47	C10Q47U	TC7-47	NT-5447	5TCU-Q47	N750
C33	2-12									
C34	12				TCZ-12	C10Q12C	TCO-12			NPO

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SHERWOOD PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C35	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C36	360			1469-00036		5R5T36	CY15C361J		MS-336	5%
C37	360			1469-00036		5R5T36	CY15C361J		MS-336	5%
C38	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C39	15000			BPD-015	DD16-153	BYA10S15	ED-015		5HK-S15	
C40	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C41	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C42	180			1469-00018	TCZ-180	5R5T36	TCO-180		MS-318	5%
C43	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C44	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C45	47				TCN-47		TC7-47		5TCU-Q47	N750 5%
C46	1000			EF-001	MFT-1000				503C-D1	
C47	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C48	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C49	22			BPD-000022	DD-220	L10Q22	ED-22	UC-5422	5GA-Q22	
C50	47			N750-DI 47	TCN-47	C10Q47J	TC7-47	NT-5447	5TCU-Q47	N750
C51	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C52	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C53	1000			EF-001	MFT-1000				503C-D1	
C54	43			1469-000043		22R5Q43	TCO-43		MS-443	③ 5% N220
C55	100									
C56	470				D6-471	5R5T47	ED-470		MS-347	10%
C57	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C58	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C59	5000			BPD-005	DD-502	BYA10D5		DC525	5HK-D5	
C60	22			NPO-DI 22	TCZ-22	C10Q22C	TCO-22		5TCC-Q22	NPO
C61	47				TCN-47		TC7-47		5TCU-Q47	N750 5%
C62	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C63	.033	400		P488N-033	DF-303	CUB6S33		GEM-4133	6TM-S33	
C64	.022	400		P488N-022	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C65	1500					1R5D15	ED-1500		MS-215	10%
C66	1500					1R5D15	ED-1500		MS-215	10%
C67	100			BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C68	.015	400								10%
C69	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C70	2000			BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C71	2000	1400		DAC-3	DD30-202	HVC16D2	HD15-2200	DC30222	MB-D2	④
C72	2000	1400		DAC-3	DD30-202	HVC16D2	HD15-2200	DC30222	MB-D2	①

① Not used in some versions.
② Some versions use 3.9mmf in this application.
③ Some versions use 47mmf in this application.
④ Some versions use 5000mmf in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SHERWOOD PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	25K	½	670AD4	B-26	A47-25K-S	B11-120	TA253L	Audio Level
B	Shaft			Not Req.	FKS-1/4	TM2-Kit	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	SHERWOOD PART No.	NOTES
R2	47K			
R3	270K			
R4	3900Ω			
R5	100Ω			
R6	33K			
R7	100K			
R8	270Ω			

ITEM No.	RATING OHMS	RATING WATT	SHERWOOD PART No.	NOTES
R9	27K	1		
R10	680Ω			
R11	1500Ω			
R12	82Ω			
R13	220K			
R14	2200Ω			
R15	82Ω			

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	SHERWOOD PART No.	NOTES
R16	56Ω			
R17	220K			
R18	2200Ω			
R19	22K			
R20	330Ω			
R21	4.7meg			
R22	560Ω			
R23	150Ω			
R24	150K			
R25	680Ω			
R26	100Ω			
R27	100K			
R28	10meg			
R29	100K			
R30	150K			
R31	1.5meg			
R32	8200Ω			Note 1
R33	6800Ω			
R34	6800Ω			
R35	68K			
R36	1000Ω			
R37	100K 5%			
R38	100K 5%			
R39	100K			
R40	150K			
R41	2.2meg			
R42	180K			
R43	330K			
R44	6800Ω			
R45	100K			
R46	1meg			
R47	2.2meg			
R48	150K			
R49	470K			
R50	22meg			
R51	22meg			
R52	470Ω			
R53	39K			
R54	1meg			
R55	470K			
R56	470Ω	2		
R57	470Ω	2		
R58	0.82Ω	1		

Note 1. Some versions may use 27K in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA SHERWOOD PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .45A	320VCT @ .050A	6.3V @ 4.5A	922AG1						

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA SHERWOOD PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Trans.						
L2	RF Choke		19-1000	BC-561	4602		1 Microhenry
L3	Cathode Choke		19-1003	BC-564	4608		3.9 Microhenries; IRC Part #CLA
L4	FM Mixer Coil						
L5	RF Choke		19-1003	BC-564	4608		3.9 Microhenries; IRC Part # CLA
L6	FM Osc. Coil						
L7	RF Choke		19-1003	BC-564	4608		3.9 Microhenries; IRC Part #CLA
L8	Loop Stick						
L9	AM Ant. Coil						
L10	AM RF Trans.		14-1410				
L11	AM Osc. Coil						
L12	1st FM IF		16-3487	FM-254	1463		
L13	1st AM IF						
L14	Fil. Choke		19-1002	BC-563	4606		2.5 Microhenries
L15	2nd FM IF		16-3487	FM-254	1463		
L16	2nd AM IF						
L17	Fil. Choke		19-1002	BC-563	4606		2.5 Microhenries
L18	3rd FM IF						
L19	FM Limiter						
L20	FM Discriminator		17-3494	FM-253	1464		
L21	10KC Filter						

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA SHERWOOD PART No. FUSE	SHERWOOD PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	1½A 125V S/B			31301 5 (3AG 1½A 125V Slo Blo)	342001	MDL 1½	HKP

MISCELLANEOUS

ITEM No.	PART NAME	SHERWOOD PART No.	NOTES
M2	Dial Lamp		#44
M3	Dial Lamp		#44
M4	Tuning Cap.		6 Gang (Am Sections: Ant. 10-370mmf, RF 10-362mmf, Osc. 8-150mmf)
M5	Switch		Selector (Rotary, Wafer Type)
M6	Switch		AM Wide-Narrow (Slide Type, SPDT)
M7	Switch		FM AFC (Slide Type, SPDT)

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)..... Use BELDEN No. 8401
Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

SILVERTONE MODELS 8013, 8014, 8015 (Ch. 132.42900)

SILVERTONE MODELS 8013, 8014, 8015 (Ch. 132.42900)

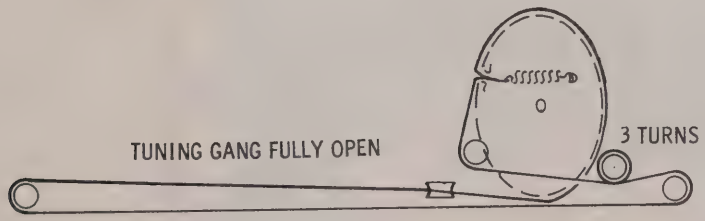
SILVERTONE MODELS 8013, 8014, 8015 (Ch. 132.42900)

TRADE NAME	Silvertone Models 8013, 8014, 8015 (Ch. 132.42900)
SUPPLIER	Sears, Roebuck & Co., 925 S. Homan Ave., Chicago, Illinois
TYPE SET	AC-DC Operated AM Receiver
TUBES (Six)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det. - AVC - AF Amp., 35C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC
RATING	.31 Amp. @ 117 Volts AC (31 Watts)
TUNING RANGE—BROADCAST	540-1670KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

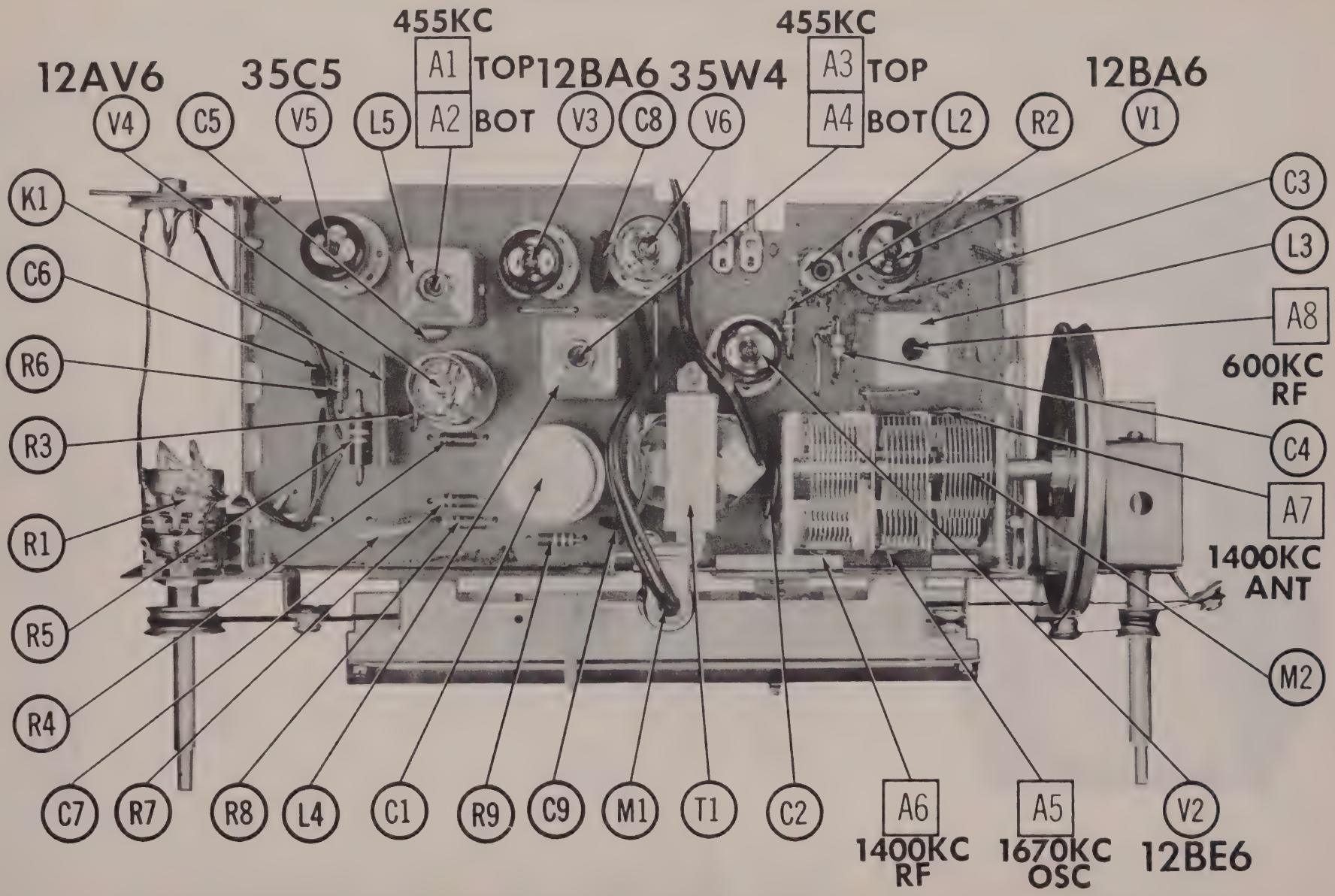
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05mfd	High side to pin 7 (grid) of 12BE6 (V2). Low side to B-.	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum deflection.
2.	"	"	1670KC	"	"	A5	"
3.		Loop	1400KC	1400KC	"	A6, A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	600KC	600KC	"	A8	"



HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H395

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12BA6	
V4	Det.-AVC-AF Amp.	12AV6	
V5	Output	35C5	
V6	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■50	150	43711-3	PRS150V5030 20	BBRT53215	PFP311.63	TDLT-6	FMT-315	TI2337
B	20	150							
C	▲30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C3	100		43957-1	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C4	2.2		20238-4	NPO-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	
C5	150		43957-2							N2200
C6	2000		43674-4	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C7	15000		43674-3	BPD-015	DD16-153	BYA10S15	ED-015		5HK-S15	
C8	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C9	20000		43674-2	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg		43832	F1-52			■ UE3535-S	Tone
B	500K			R2-41				Volume
C	Switch			KB-1				Power On-Off

■ "STA-LOC" Equivalent: FB16A, OS1875, RU55A, IS2375, US-41

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	SILVERTONE PART No.	NOTES
R2	22K		43687-223	
R3	47K		43687-473	
R4	1meg		43687-105	
R5	12K	1	43688-123	
R6	100Ω		43689-101	
R7	330Ω		43687-331	
R8	330Ω		43687-331	
R9	330K		43687-334	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2900Ω	3-4Ω	42700-13	Z1101	A-3025		A-3332	24S53	S-2X	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA SILVERTONE PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	5"	PM	3-4Ω	43365-2 ①	5A1Z6 ①	① Parallel and Phase
SP2	5"	PM	3-4Ω	43365-2 ①	5A1Z6 ①	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA SILVERTONE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loop Stick	43831-3					Includes Cabinet Back
L2	Osc. Coil	43644-3					
L3	RF Trans.	43829-1					
L4	Input IF	44282-1	16-6780	BC-356	13-PC9	RF-4	
L5	Output IF	44282-1	16-6780	BC-357	13-PC10	RF-4	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SILVERTONE PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	220mmf, 5000mmf, 5000mmf, 125mmf, 125mmf, 6.8meg, 470K, 470K	43743-2	Aerovox PA-512 Centralab PC-158 Sprague DT-5 Erie 1408-02

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M1	Dial Lamp	23767	#44
M2	Tuning Cap.	43827	3 Gang (Ant. 25-290mmf)

CABINETS & CABINET PARTS

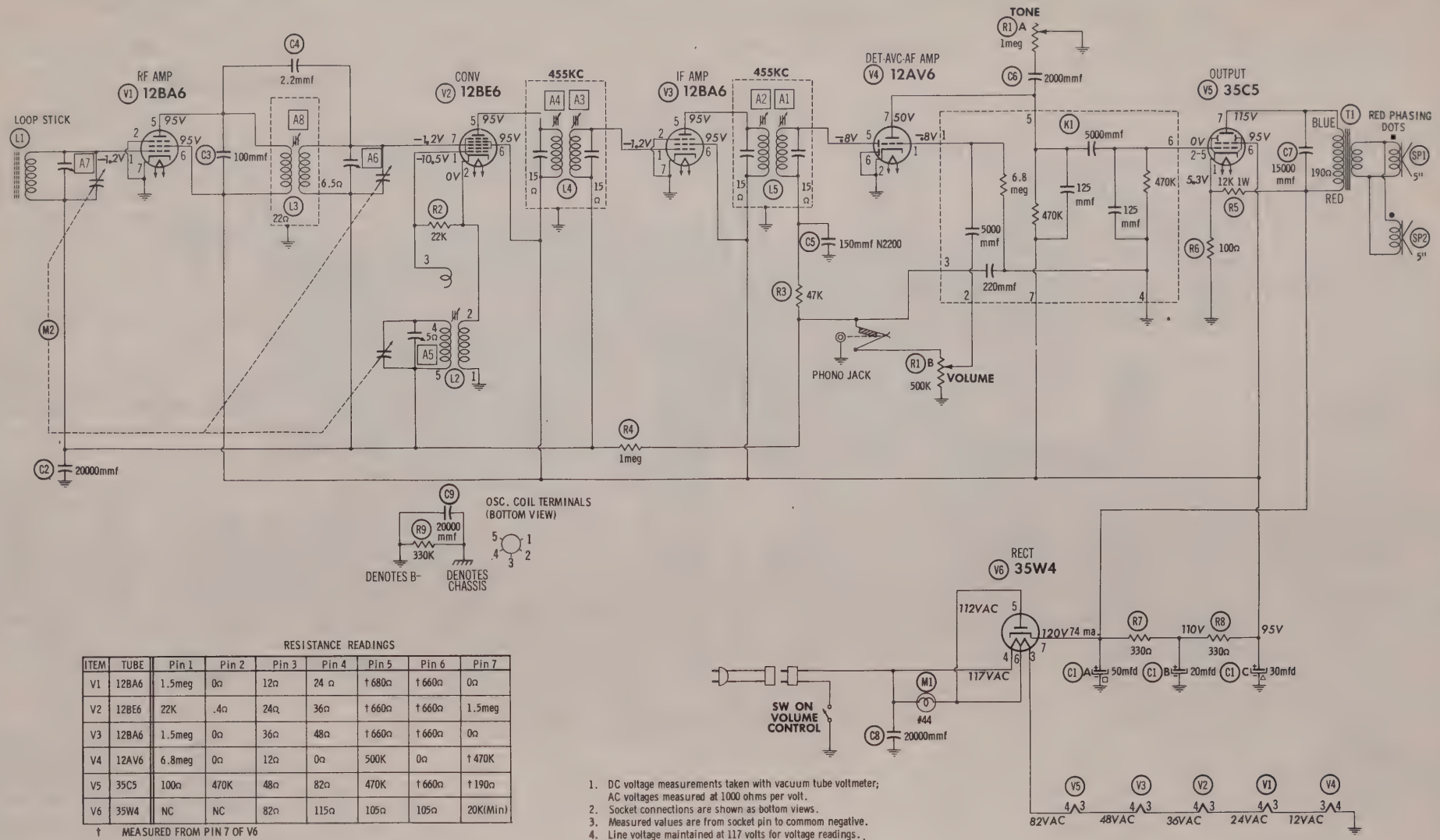
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	44997-48	Tone & Tuning, Brown, Model 8013
Knob	44997-17	Tone & Tuning, Ivory, Models 8014, 8015
Knob	45050-48	On-Off-Volume, Brown, Model 8013
Knob	45050-17	On-Off-Volume, Ivory, Models 8014, 8015
Cabinet	45040-48	Brown, Model 8013
Cabinet	45040-17	Ivory, Model 8014
Cabinet	45040-138	Parchment Beige, Model 8015
Dial Crystal	43914	
Dial Pointer	44177	
Tone Pointer	44178	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BA6	1.5meg	0Ω	12Ω	24 Ω	†680Ω	†660Ω	0Ω
V2	12BE6	22K	.4Ω	24Ω	36Ω	†660Ω	†660Ω	1.5meg
V3	12BA6	1.5meg	0Ω	36Ω	48Ω	†660Ω	†660Ω	0Ω
V4	12AV6	6.8meg	0Ω	12Ω	0Ω	500K	0Ω	†470K
V5	35C5	100Ω	470K	48Ω	82Ω	470K	†660Ω	†190Ω
V6	35W4	NC	NC	82Ω	115Ω	105Ω	105Ω	20K(Min)

† MEASURED FROM PIN 7 OF V6
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

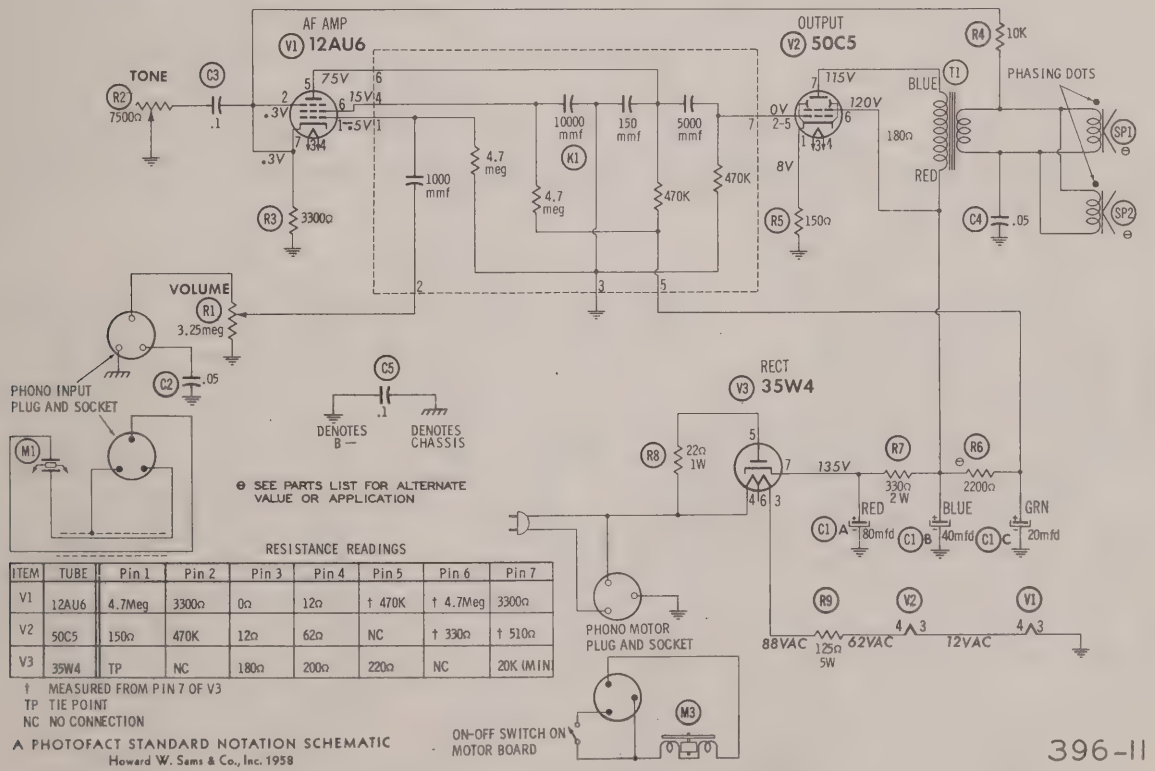
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

SYLVANIA MODEL 4401 (Ch. 1-608-1)

SYLVANIA MODEL
4401 (Ch. 1-608-1)

TRADE NAME	Sylvania Model 4401 (Ch. 1-608-1)
MANUFACTURER	Sylvania Electric Prod., Inc., Radio & Tel. Div., 700 Elliott St., Batavia, N. Y.
TYPE SET	AC Operated Phono Amplifier With 4 Speed Automatic Record Changer
TUBES (Three)	Types 12AU6 AF Amplifier, 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC-60 Cycles RATING .26 Amp. @ 117 Volts AC (25 Watts)

FOR SERVICE INFORMATION ON RECORD CHANGER 1-317-1 — SEE SIMILAR V-M MODEL 1200A - PHOTOFACT SET 353 FOLDER 16.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AU6	4.7Meg	3300Ω	0Ω	12Ω	† 470K	† 4.7Meg	3300Ω
V2	50C5	150Ω	470K	12Ω	62Ω	NC	† 330Ω	† 510Ω
V3	35W4	TP	NC	180Ω	200Ω	220Ω	NC	20K (MIN

† MEASURED FROM PIN 7 OF V3
TP TIE POINT
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

396-11

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of H104

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

SET 396 FOLDER 11

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AU6	
V2	Output	50C5	

ITEM No.	USE	TYPE	NOTES
V3	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	150	161-3030	PRS150V8040-20	BBRT84215	TCT3117	TDLT-7	T-055	TVA-3455
B	40	150							
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.05	200	160-04147	BPD-05	DF-503	CUB2S5		GEM-415	4TM-S5	
C3	.1	200	160-0601	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C4	.05	200	160-04147	BPD-05	DF-503	CUB2S5		GEM-415	4TM-S5	
C5	.1	400	160-0601	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	3.25Meg	1/2	153-0119	B-85	A47-3Meg-Z	Q13-140	U57	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	7500Ω	1/2	153-0120	B-13	A47-7500-S	Q11-115	U20	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		SYLVANIA PART No.	NOTES
	OHMS	WATT		
R3	3300Ω		181-0332	
R4	10K		181-0103	
R5	150Ω		181-0151	
R6	2200Ω			Note 1

ITEM No.	RATING		SYLVANIA PART No.	NOTES
	OHMS	WATT		
R7	330Ω	2	183-0331	
R8	22Ω	1	181-0220	
R9	125Ω	5	187-0051	

Note 1. Some versions may use 1800Ω (Part #181-0182).

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SYLVANIA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2200Ω	1.6Ω	143-0059	Z1107 ①	A-3026	A-3877 ①	24S51 ①	S-6X	① Drill one new mtg. hole.

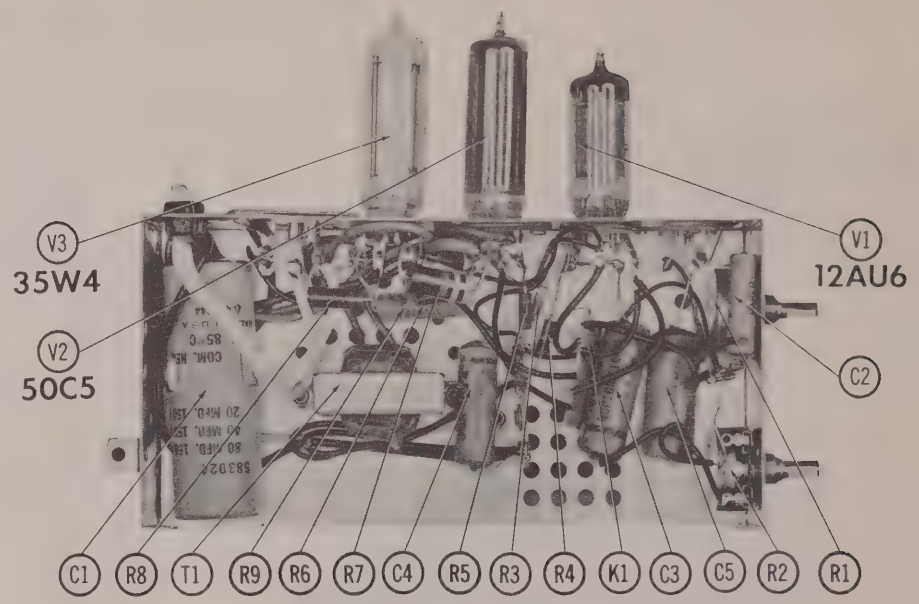
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYLVANIA PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	539-0421 ①	4A07 ①	① Parallel And Phase
SP2	4"	PM	3-4Ω	539-0421 ①	4A07 ①	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SYLVANIA PART No.	REPLACEMENT DATA
K1	Audio Coup. Net.	1000MMF, 10000MMF, 5000MMF 150MMF, 4.7Meg, 4.7Meg, 470K, 470K	190-0029	

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	SYLVANIA PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	916-0006	118-TS	N8-1 N8-3	56	PT-1	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	SYLVANIA PART No.	JENSEN PART No.	WALCO PART No.	
M2	902-0006 (78 RPM)	† CRA-55 or ♦ CRA-55D	† W-64S	† Jewel ♦ Diamond
	902-0007 (LP)	† CRA-55LP or ♦ CRA-55LPD	† W-64MGS	

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M3	Motor	924-0007	Phono

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting)..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

TECH-MASTER MODEL 16A

TECH-MASTER MODEL 16A

TECH-MASTER MODEL 16A

TRADE NAME	Tech-Master Model 16A
MANUFACTURER	Tech-Master Corp., 75 Front Street, Brooklyn 1, N. Y.
TYPE SET	AC Operated Preamplifier
TUBES (Three)	Types 12AX7 Preamplifier, 12AU7 AF Amplifier, 6C4 Cathode Follower
POWER SUPPLY	105-125 Volts AC-50/60 Cycles RATING .1 Amp. @ 117 Volts AC (10 Watts)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H363

PARTS LIST AND DESCRIPTIONS

TECH-MASTER MODEL 16A

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Preamplifier	12AX7	
V2	AF Amplifier	12AU7	
V3	Cathode Follower	6C4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Tech-Master PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	200	CE-225-1	PR4-200	BBRT0185	TCT3115		T-102	R2567 *
B	40	150							
C	40	150							

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Tech-Master PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	4000			BPD-004	DD-402	BYA10D4	ED-004	UC-5224	5HK-D4	
C3	15000			BPD-015	DD16-153	BYA10S1M	ED-015		5HK-S15	
C4	15000			BPD-015	DD16-153	BYA10S1M	ED-015		5HK-S15	
C5	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C6	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C7	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C8	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C9	.002	400		P488N-002	D6-202	CUB6D2	GP-2000	GEM-622	6TM-D2	
C10	.047	400		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C11	180			1469-00018	D6-181	22R5T18	ED-180		MS-318	10%
C12	.001	400		P488N-001	D6-102	CUB6D1	GP-1000	GEM-621	6TM-D1	
C13	4000			BPD-004	DD-402	BYA10D4	ED-004	UC-5224	5HK-D4	
C14	15000			BPD-015	DD16-153	BYA10S1M	ED-015		5HK-S15	
C15	.15	200		P288N-15		CUB2P15		GEM-2015	2TM-P15	
C16	.01	400		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Tech-Master PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1meg	½	VC160C	C1-70-S		Q18-137XX	UDT-289	Volume, Tap @ 300K & 700K
B	Switch			Not Req.		76-1	US-26	
R2A	1meg	½	VC507	B-69	A47-1meg-S	Q11-137	U54	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1meg	½	VC507	B-69	A47-1meg-S	Q11-137	U54	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS

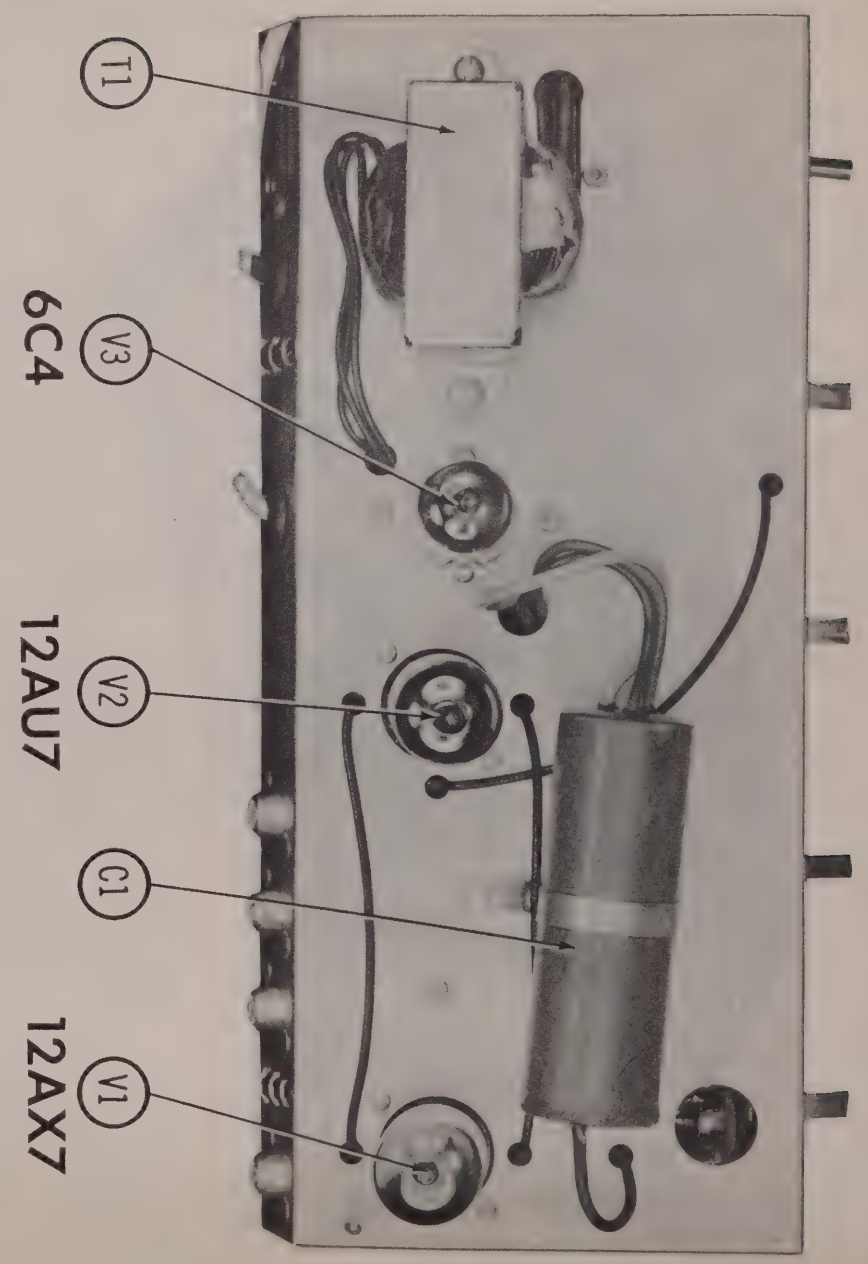
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Tech-Master PART No.	NOTES
	OHMS	WATT		
R4	22K			Note 1
R5	56K			
R6	2200Ω			
R7	10meg			
R8	56K			
R9	22K			
R10	100K			
R11	3300Ω			
R12	100K			

ITEM No.	RATING		Tech-Master PART No.	NOTES
	OHMS	WATT		
R13	100K			
R14	15K 5%			
R15	22K			
R16	2200Ω			
R17	560K			
R18	1000Ω			
R19	22K			
R20	10K			

Note 1. Use 47K for Audak cartridge, 22K for G. E. cartridge, 15K for Pickering cartridge.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	Tech-Master PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .1A	150V @ .006A	6.3V @ .74A	TP120		P-3046 ①				

① Use original channel mounting frame.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Tech-Master PART No.	REPLACEMENT DATA
K1	Tone Compensation	560mmf, 1200mmf, 680mmf, 82K, 82K, 100K, 150K, 82K	PC16-1	Erie 708-02
K2	Tone Compensation		PC183	

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	Tech-Master PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.006A	SR-1	1159 ①	RS050 ①	50T	① 2 required.

MISCELLANEOUS

ITEM No.	PART NAME	Tech-Master PART No.	NOTES
M2	Switch	SW103-2	Selector (Rotary Wafer Type)
M3	Switch	SW108	Equalizer (Rotary Wafer Type)

CABINETS & CABINET PARTS

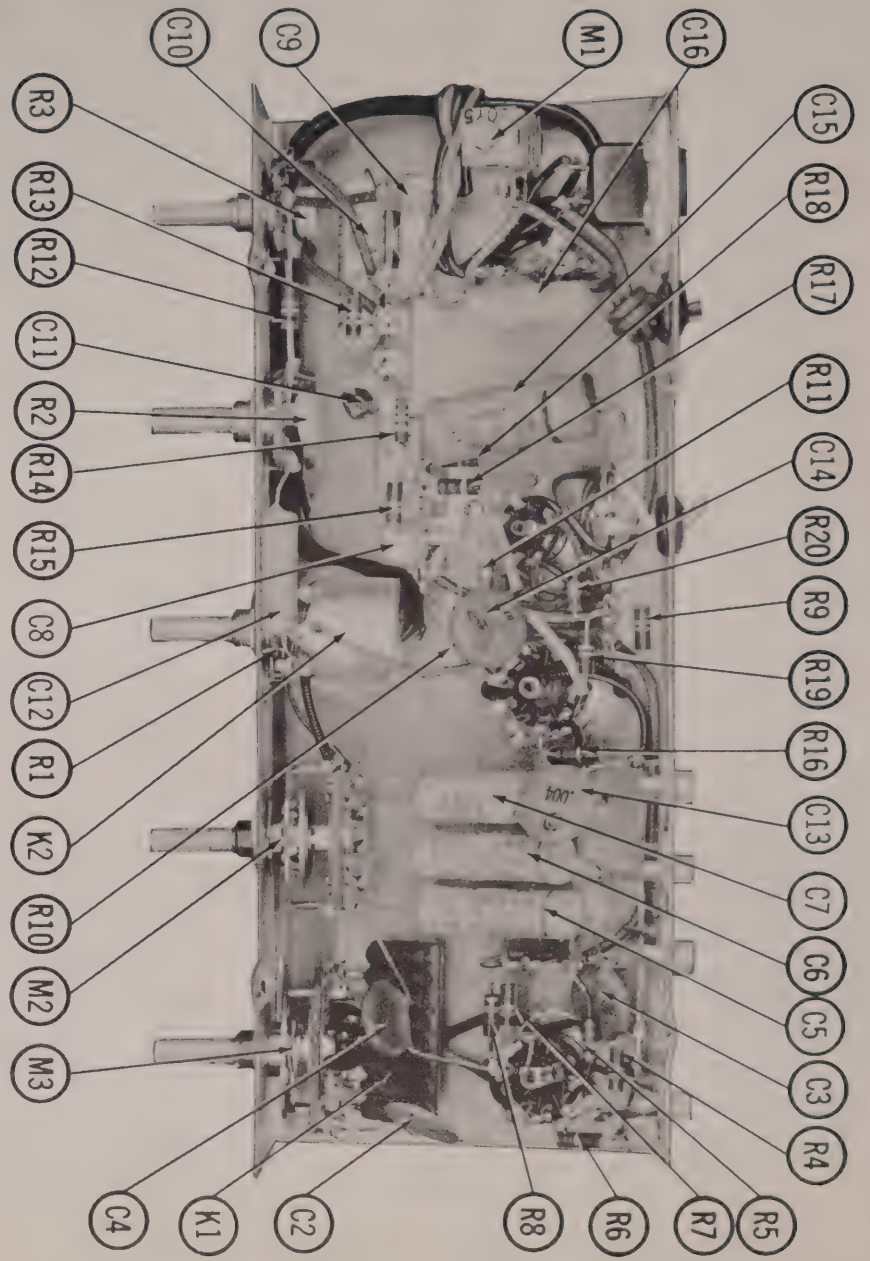
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	KN	5 Used
Cabinet	CA16P-2	
Escutcheon	ESC-20	

WIRING DATA

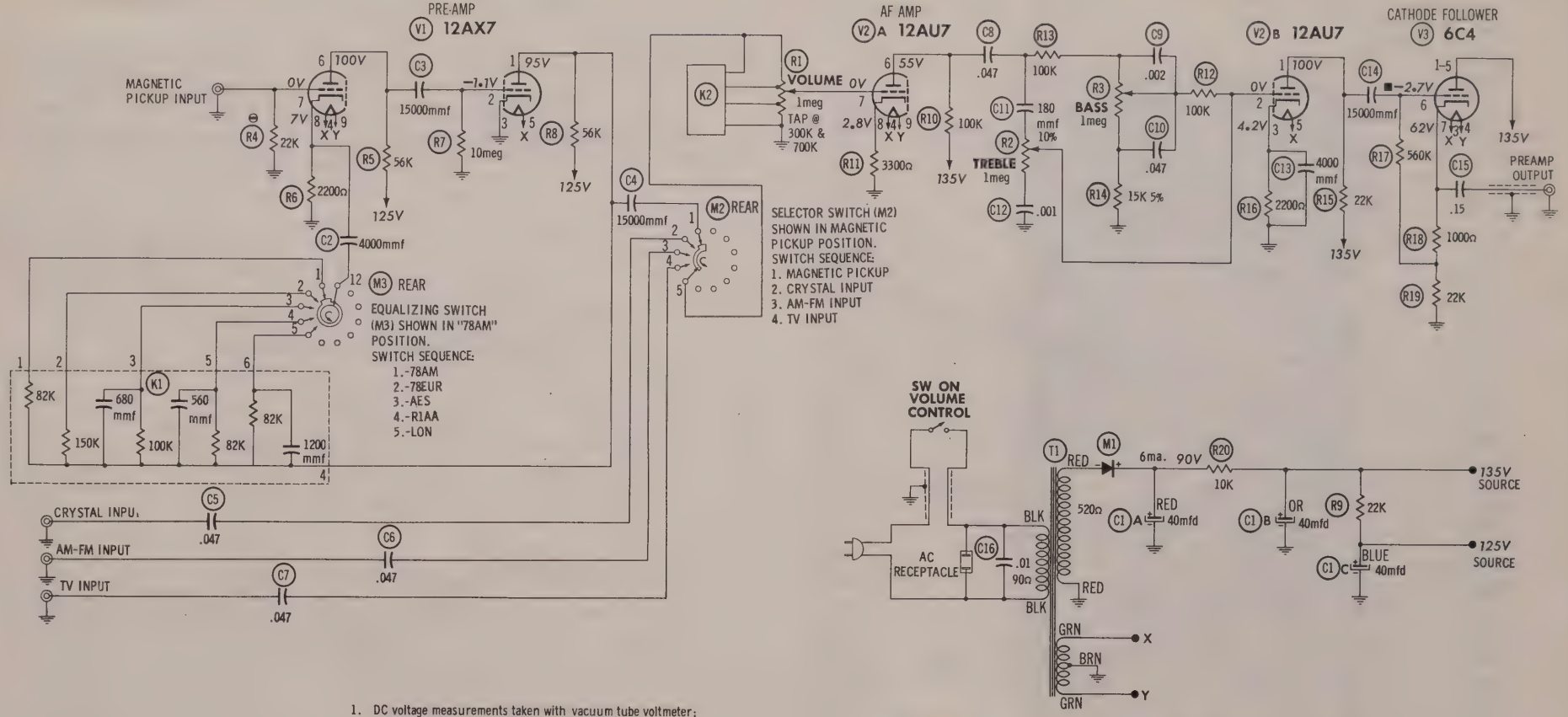
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW



TECH-MASTER MODEL 16A

TECH-MASTER MODEL 16A



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†88K	10meg	0Ω	.3Ω	.3Ω	†88K	22K	2200Ω	.3Ω
V2	12AU7	†32K	115K	2200Ω	.3Ω	.3Ω	†110K	0Ω	3300Ω	.3Ω
V3	6C4	†10K	NC	.3Ω	.3Ω	†10K	580K	23K		

† MEASURED FROM OUTPUT OF M1
■ MEASURED FROM PIN 7 OF V3
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

V-M MODEL
959

V-M MODEL
959

GENERAL INFORMATION

The V-M Model 959 Record Changer is designed to play in automatic sequence a stack of records and shut off after playing the last record. As many as ten 12", twelve 10", or any assortment of 10" and 12" records (providing they are of the same speed and same type of groove) may be intermixed in any order. A stack of twelve 7, 33 1/3 R.P.M. records or a stack of twelve 7", 45 R.P.M. records (with the use of a "45" Adaptor Spindle) will also play on this changer. Playing of 16 R.P.M. records should be done manually. Turn the Needle Selector to "L" and Speed Control to "16" then follow the instructions for Manual Operation.

Record separation is accomplished by movement of a finger in the center spindle. This finger directly separates records having a 1/4" centerhole and actuates the knives and shelves of the centerpost used for playing of 45 R.P.M. records having a 1 1/2" centerhole.

The tripping method used is the velocity type in which the trip link causes a trip pawl to engage a projection on the turntable hub and start the mechanism into cycle.

Connect this changer to an outlet supplying 117 volts, 60 cycle AC only, unless otherwise specified.

Manufactured by:

V-M Corporation
Benton Harbor, Michigan

This material compiled and published by

HOWARD W. SAMS & CO., INC., INDIANAPOLIS, INDIANA

Copyright 1958 • All Rights Reserved

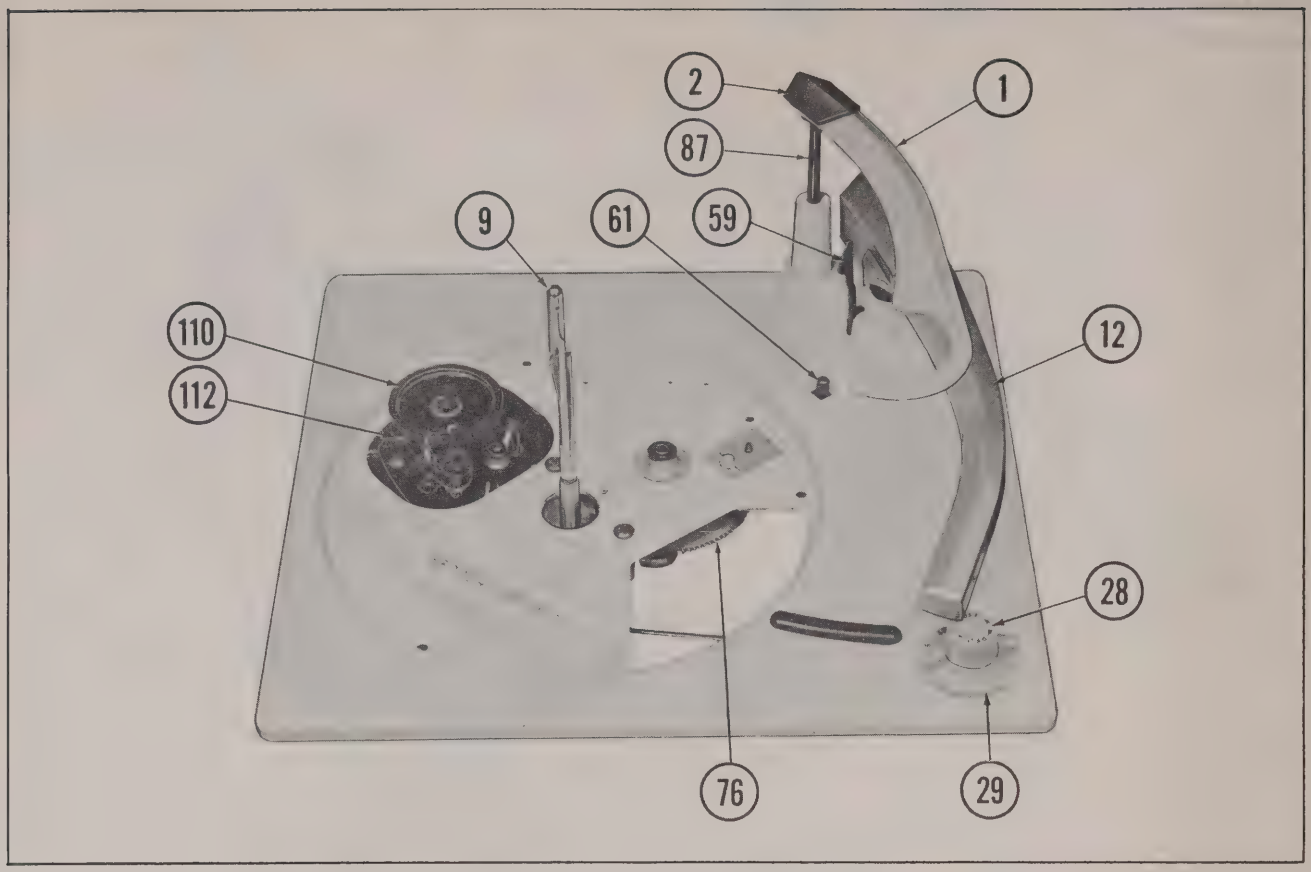


FIGURE 1

OPERATING INSTRUCTIONS

Loading

1. Pull straight up on record support knob (2) until record support clears spindle, then swing support out over pick-up arm.

2. Place records on spindle and lower to offset shelf. Hold records level and replace record support over spindle.

Starting

To start the machine, after checking that the stylus and speed controls are in the position corresponding to the type records to be played, turn "Off-On-Rej." knob to "Rej." and release. The changer will operate automatically until the last record has been played, at which time the pick-up arm is returned to its rest and the supply to the motor is switched off.

Rejecting

To reject a record at anytime while the changer is operating, turn "Off-On-Rej." knob to "Rej." and release.

Stopping

The changer may be stopped at any time while a record is playing by turning changer knob to "Off". Lift pick-up arm and place on rest.

Unloading

Lift record support clear of spindle and swing out over pick-up arm. Using both hands, with fingers under the edge of bottom record, lift records straight up and off spindle.

Manual Operation

Records that do not have starting and fast-finishing grooves must be played manually. To play records manually, lift the record support arm and swing to the right until clear of the turntable. Place record on spindle and lower to spindle shelf. Tilt record down toward left front of baseplate and lower to turntable. Turn changer control knob to "On" position only. Gently place needle on record.

Repeating Of 7", 10" Or 12" Records

To repeat a record, swing record support clear of turntable, place record on turntable and start changer. Record repeats until control is turned "Off". If a 12" record is repeated, wait for changer to finish cycling and reposition the pick-up arm manually to the 12" position.

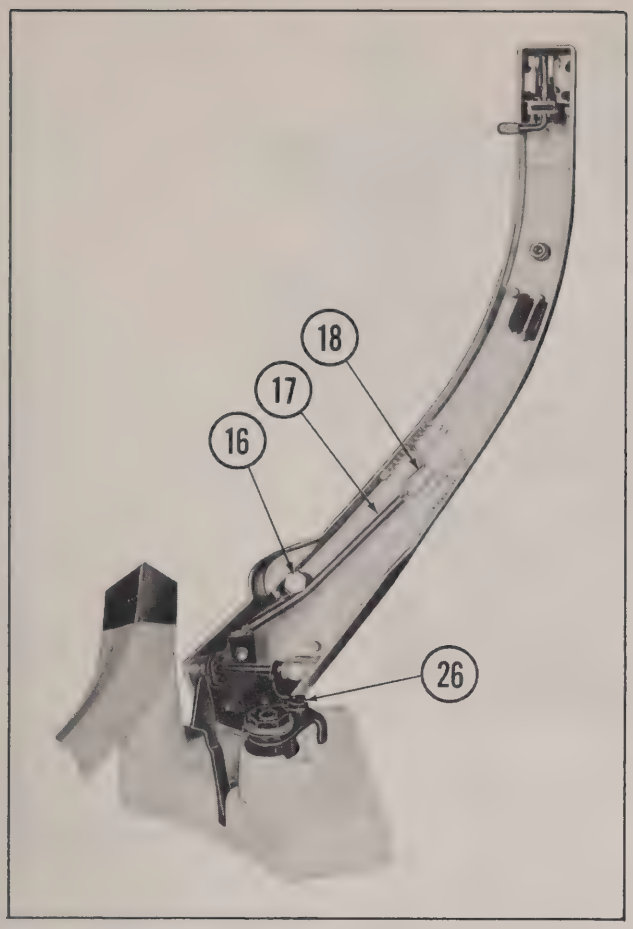
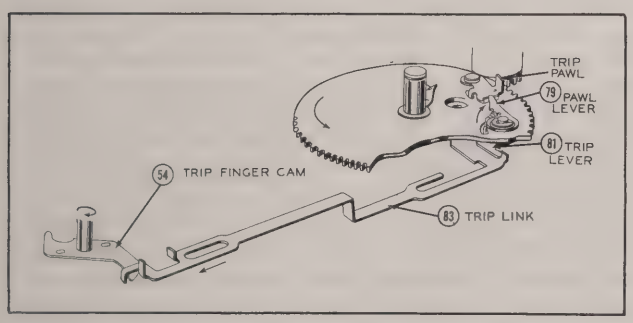


FIGURE 2

CHANGE CYCLE

It is recommended that the change cycle operation be observed by rotating the turntable by hand. The action described below can then be readily followed and the function of each part more easily understood.



This changer is provided with what is known as a velocity trip mechanism. The change cycle is started by the faster inward motion of the pick-up arm when the needle enters the trip grooves at the end of the record. Only records having fast finishing grooves will operate this trip.

The pick-up arm and hinge assembly, and trip finger cam and shaft assembly (54) are secured together so that they move in unison. As the pick-up arm nears the end of a record, trip finger cam (54) pushes trip link (83) which, in turn, engages and pivots trip lever (81). As trip lever (81) pivots, pawl lever (79) pivots with it and carries the trip pawl toward the hub on the turntable. While a record is playing, the small motions of the trip pawl are not sufficient to cycle the mechanism because on each revolution of the turntable the wiping contact by the hub projection moves the trip pawl back to clear the projection.

In the first revolution of the turntable during which the pick-up arm advances rapidly, the trip pawl is moved far enough to definitely engage the projection on the turntable hub. The contact between the trip pawl and the turntable hub projection gives the necessary push for the teeth in main gear (76) to engage the teeth in the turntable hub, thus causing main gear (76) to rotate. This, in turn, starts the lateral travel of the slide assembly (84). The slide assembly (84) moves to the rear thru the action of an eccentric mounted pin on main gear (76), which rides the cross slot on the slide assembly (84).

As the slide assembly begins to move, the cam surface on the rear of the slide pushes lift pin (25) upward, raising the pick-up arm clear of the record. At the same time, trip finger cam (54) is pushed up by the force transfered through lift pin spring (57). The raising of trip finger cam (54) causes the two formed dimples in the trip finger cam to engage the two holes in the pick-up arm return locator (49) and couple them together. This directs the movement of the pick-up arm during the change cycle.

Slide assembly (84) continues to move away from the centerpost until the formed end of slide (84) pushes against the pick-up arm return locator (49). This relieves the force of pick-up arm return locator (49) against shut-off lever assembly (71), permitting shut-off lever spring (70) to return the shut-off lever (71) to the normal (raised) position.

After cycling slide (84) has raised the pick-up arm and is moving it outward, the tab on front of slide assembly (84) contacts the ejector bracket assembly (93). Ejector bracket (93) moves push rod (101) upward, actuating spindle assembly (9), to drop a record to the turntable.

Simultaneously, the trip pawl on top of main gear (76) contacts and rides along the curved finger of the retard assembly (53). This action moves the trip pawl and its associated levers into a neutral position. This prevents the trip pawl from re-engaging with the projection on the turntable hub which would start a new change cycle.

At this time, the cam surface of the bracket located on top of the main gear (76) moves reset lever (68) to its mid-position (10" set-down) where it is held by the 12" record selector (59). Slide assembly (84) continues to the rear and then starts forward.

If 7" records are being changed, the rubber bumper (61) on 7" set-down lever (63) is free to move upward. This action of 7" set-down lever (63) raises reset lever (68) to the upper position (7" set-down).

If 10" records are being changed, the 7" set-down lever (63) will not operate as the rubber bumper (61)

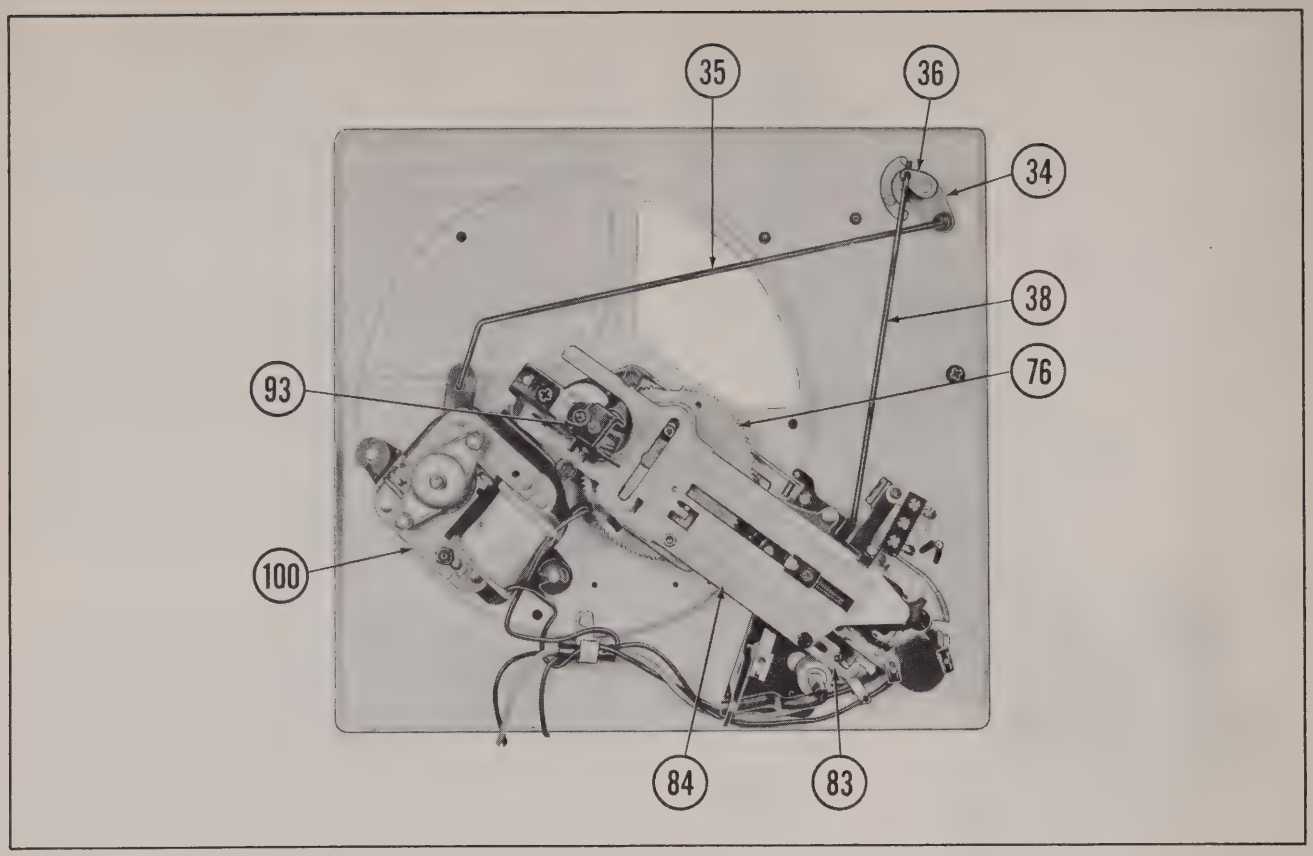


FIGURE 3

will contact the edge of the 10" record and reset lever (68) will remain in the mid-position (10" set-down) as originally placed by the camming action of the bracket on top of main gear (70).

When a 12" record drops to the turntable, it strikes the 12" record selector (59) and forces it backward. This disengages the end of reset lever (68) from the edge of the 12" record selector (59) and permits the reset lever (68) to drop down into the recess at the bottom of the 12" record selector (59). This position of the reset lever (68) causes it to engage the bottom step of the pick-up arm return locator (49) and will push the pick-up arm to land on the edge of a 12" record.

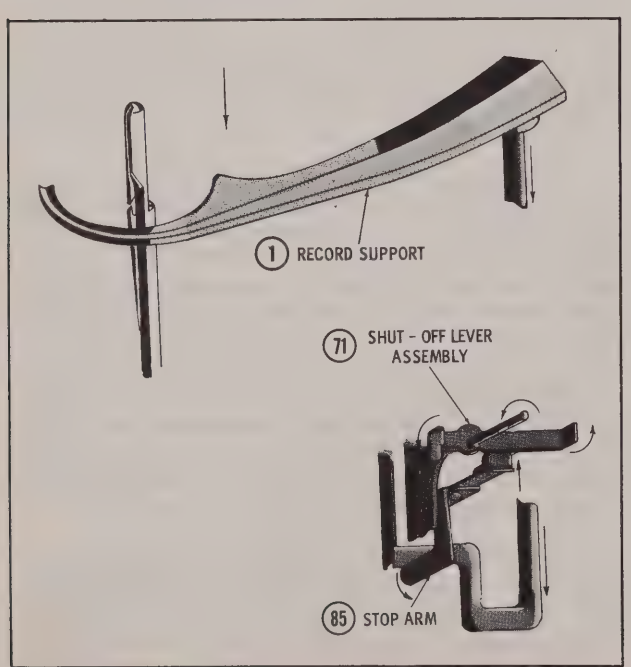


FIGURE 4

As the slide assembly (84) continues forward the tab on the rear of the slide moves clear of the pick-up arm return locator (49) and the trip finger cam (54), which are still locked together. This action permits the pick-up arm return spring (47) to move the pick-up arm inward until one of the three set-down steps in the pick-up arm return locator (49) strikes the reset lever (68), which has been positioned by the record being changed (see above). This stops the inward movement of the pick-up arm directly above the point of landing. The pick-up arm is then lowered to the lead-in groove of the record as the lift pin (25) rides down the incline on the rear of the slide assembly (84). As the pressure is released from lift pin spring (57), trip finger cam (54) and pick-up arm return locator (49) separate. This permits the pick-up arm to move freely across the record.

After the mechanism has been tripped it again follows the preceding sequence of cycling and playing the records until the last record of the stack has been played.

As the last record of the stack drops to the turntable the record support (1) drops below the shelf on the spindle assembly (9) and the lower end of record support shaft (87) contacts the stop arm on the record

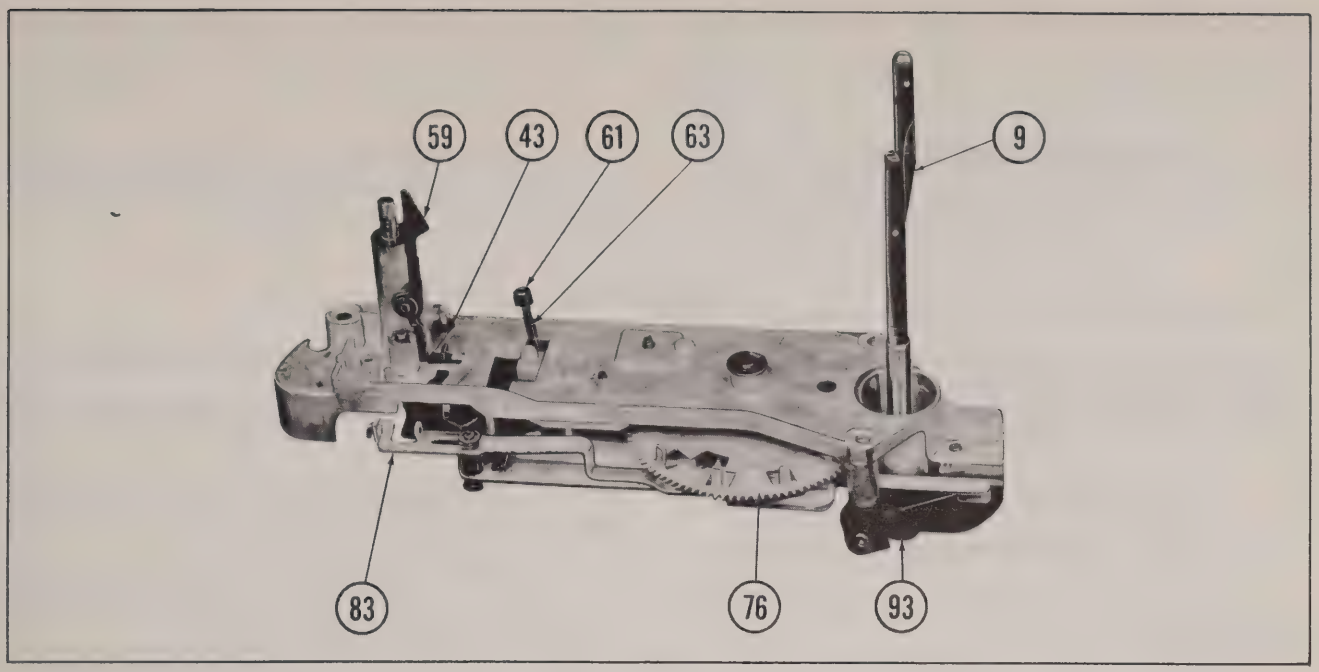


FIGURE 5

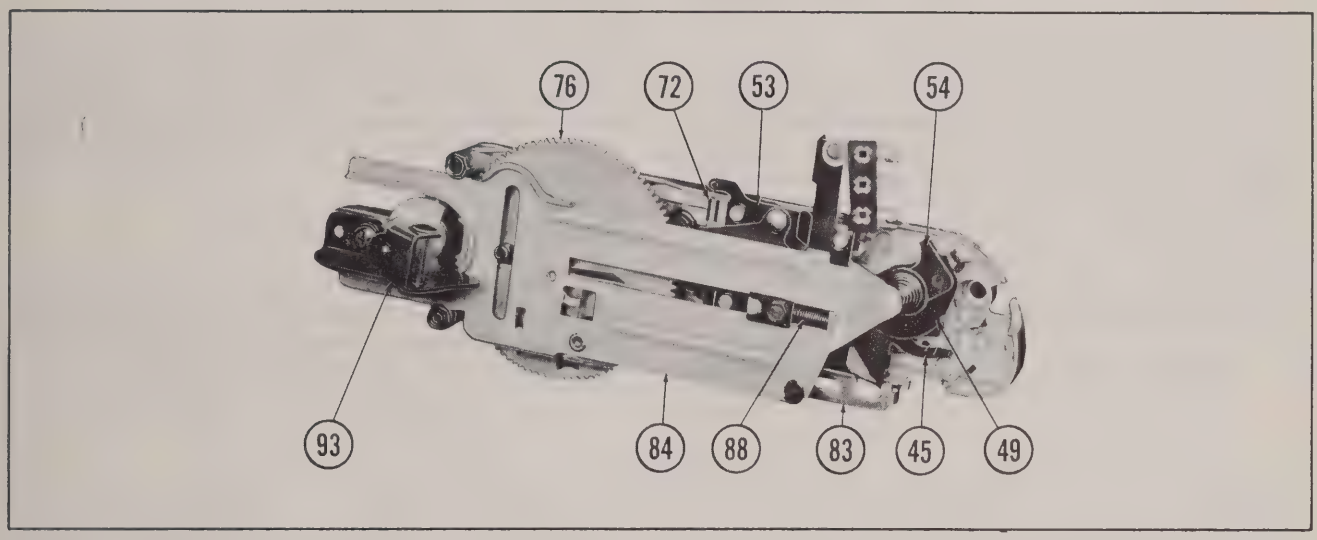
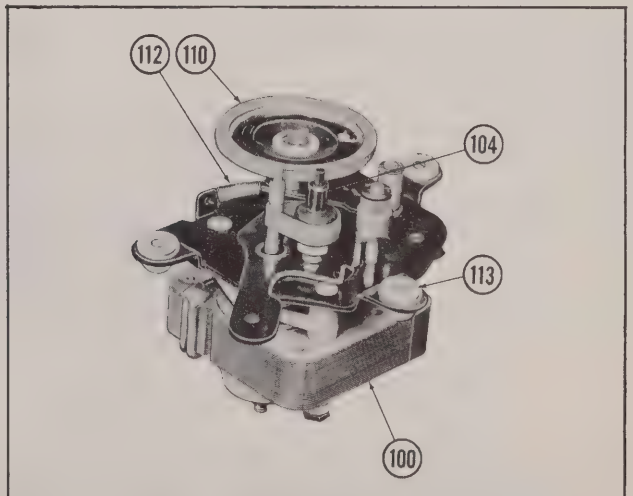


FIGURE 6

support guide assembly (85). This stop arm in turn applies force to shut-off lever (71). At this moment the cycling slide (84) is in the outermost position (away from the center post) and the end of the shut-off lever (71) is forced against the escape lever (84A) which prevents it from lowering further. (See Figure 4.)

As the cycling slide (84) returns to the out of cycle position the end of shut-off lever (71) slides off the escape lever (84A) permitting the end to extend down through the slot in the cycling slide. At this time the pick-up arm has rotated too far to be blocked by the other end of the shut-off lever (71) and the pick-up is permitted to land on the record.

After the last record has been played the mechanism again goes into change cycle, and the cycling slide (84) moves into its outermost position. At this moment the force which has been applied to the shut-off lever (71) from the record support shaft (87) causes the end of shut-off lever (71) to lower, thus extending further



TOP VIEW-MOTOR ASSEMBLY

through the slot in cycling slide (84). The other end of shut-off lever (71) raises and blocks the pick-up arm return locator (49) which at this moment is held back by the cycling slide (84).

As the cycling slide (84) moves back toward the centerpost, it carries the raised trip link (83) along until finally the formed end of the trip link (83) pushes control lever (45) which in turn actuates power switch (46). This removes power from the motor and the mechanism stops.

As the slide assembly moves to the out of cycle position, lift pin (25) rides down the incline and lowers the pick-up arm to the rest post (27).

LUBRICATION

Additional lubrication should not be required for the life of the changer, but in cases of unusual use or high operating temperature, the changer should be lubricated as follows: (Refer to the exploded view).

Apply Andok "B" or Texaco Sta-Put to:

1. Edges of all slots in slide assembly (84).
2. Outer edges of tines on forked end of slide assembly (84).
3. Lift pin cam surface on slide assembly (84).
4. Lower surface of pick-up arm return locator (49).
5. Inner surface of tab on rear of slide assembly (84).

Apply a small quantity of light mineral oil to:

1. Trip finger cam shaft (54).

ADJUSTMENTS

Needle Set-Down (Refer to Figure 3)

The set-down position of the needle is adjusted by means of the set-down adjustment screw (26A) mounted on the hinge assembly (26). Turn this screw, adjusting pick-up arm for correct set-down on a 10" record. When the correct set-down is obtained for the 10" position, the 12" and the 7" needle set-down will also be correct.

Pick-Up Arm Height (Refer to Figure 3)

The pick-up arm height is adjusted by the lift screw (16). To raise the height of the pick-up arm, turn this screw counterclockwise. To lower the pick-up arm, turn clockwise. The pick-up arm height should be adjusted so that with a 1 1/8" stack of records on the turntable the pick-up arm lifts 1/4" straight up as the change cycle starts.

Needle Pressure (Refer to Figure 3)

The needle pressure should be between 8 and 10 grams. Adjustment is made by placing weight adjusting spring (18) in the slots, on the underside of the pick-up arm, which give the desired pressure.

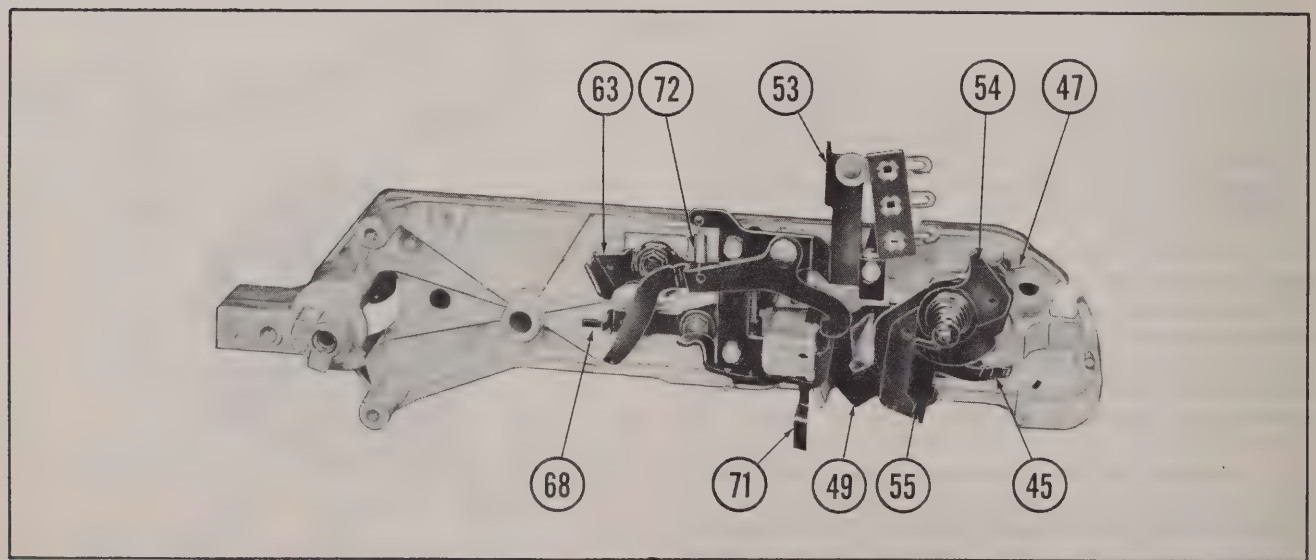


FIGURE 7

TROUBLE CHART

SYMPTOM	CAUSE	REMEDY
Turntable does not revolve when control is turned to "On".	1.No current at motor.	(a)Check that current is reaching AC leads of changer.
		(b)Check that switch is closing.
		(c)Check wiring and soldered terminals in the changer.
	2.Motor defective.	(a)Remove turntable to allow motor to operate without load. If current is reaching motor and drive spindle does not rotate, the motor is defective. Repair or replace.
	3.Motor idler wheel not engaging turntable rim.	If drive spindle is turning but turntable is not: (a)Check motor idler assembly to determine if it is free to contact the drive spindle and turntable rim. (b)Wipe off inside rim of the turntable (5) to remove flock, or if oily, clean the turntable rim and rubber tire of the idler wheel with naptha or alcohol.
	4.Motor not in detent completely.	Check speed change slide for freedom of operation.
Changer does not cycle when the control knob is turned to the "Rej" position.	1.The manual reject not actuating the trip.	(a)Turn the control knob (28) to the reject position, hold and see that the control shaft assembly (45) has moved the trip link (83) to the rear. This should actuate the trip pawl on the main gear (76) which will bring the spur on the trip pawl in contact with the hub gear on the turntable hub. (b)Check for binding of the pawl lever (79), the trip lever assembly (81) and the trip pawl. If binding occurs, clean out all foreign matter and check for freedom.
Control knob cannot be turned to "On" position.	1.Machine shut off during cycle.	Turn the turntable clockwise, by hand, until the control knob (28) is free.
Pickup arm strikes records on spindle when it raises, or pickup arm rest when it moves out.	1.Pickup arm height not adjusted properly.	(See instructions for adjusting pickup arm height under "Adjustments").
Turntable speed too slow (refer to exploded view).	1.Binding in turntable bearing.	Check the turntable bearing for freedom. Hold the motor idler wheel out of engagement with the turntable and spin the turntable, by hand, to see if it turns readily and coasts for a long time. If binding occurs, remove turntable, clean off foreign matter, and lubricate with light mineral oil.
	2.Line voltage too low.	The line voltage should not be less than 105 volts or the turntable may be too slow.
Turntable stalls or slows down during cycle; refer to exploded view.	1.Motor idler not engaging turntable.	(See "Turntable Does Not Revolve When Control Knob is Turned to "On" Position").
	2.Binding in drive mechanism.	Hold idler away from turntable, or remove idler wheel. Cycle machine by turning turntable slowly by hand. The main gear should turn freely for the complete revolution without binding at any point.

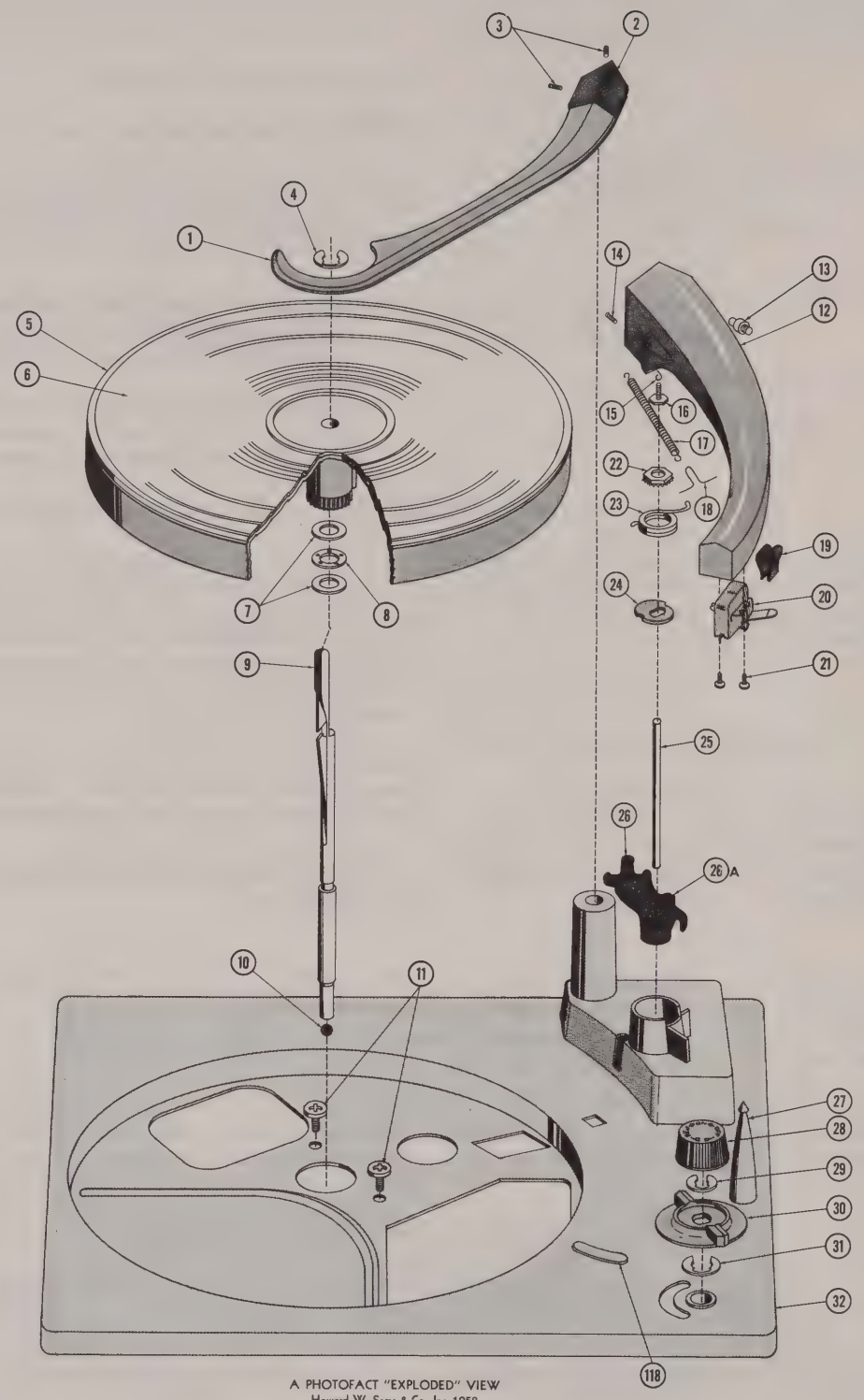


FIGURE 8A. EXPLODED VIEW OF PARTS ABOVE BASEPLATE.

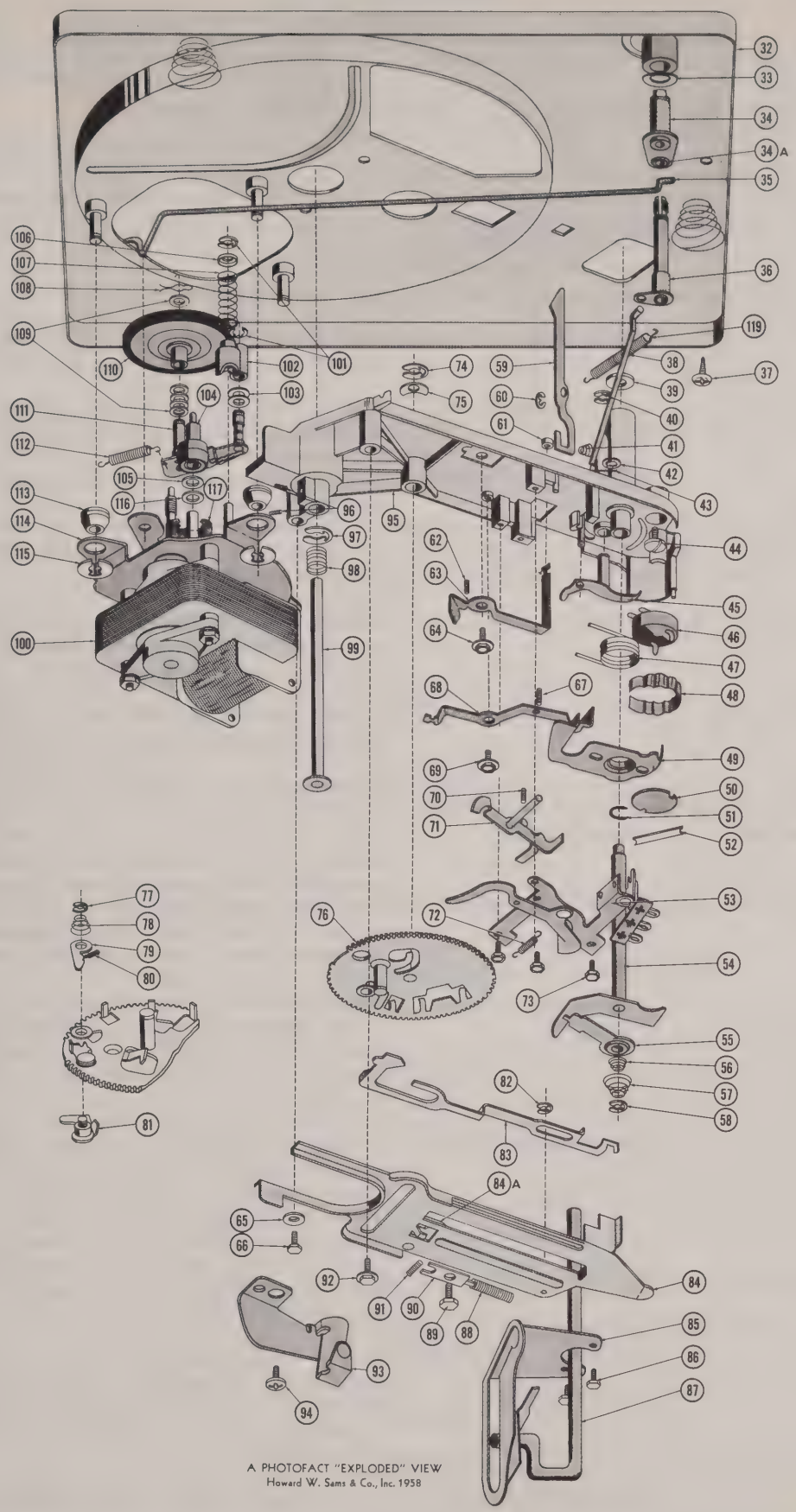


FIGURE 8B. EXPLODED VIEW OF PARTS BELOW BASEPLATE.

TROUBLE CHART (Con't.)

SYMPTOM	CAUSE	REMEDY
		(a)If binding occurs, check for foreign matter in the gear teeth, a bent gear bearing, or bent spindle bushing. Straighten or replace. Clean and lubricate.
	3.Binding between pick-up arm lift pin (25) and lift pin cam surface on slide and cam assembly.	Lift pin should ride freely on cam surface without binding.
	4.Motor weak.	When everything checks all right, but the changer still stalls in cycle, the motor may be weak.
	5.Grease on idler wheel.	Wipe off idler wheel rubber tire; inner rim of turntable and pulley tires with naptha or alcohol.
	6.Idler wheel tension spring weak.	Replace spring or bend motor tension spring anchor bracket to give desired tension.
Changer continues to cycle.	Reject mechanism binding.	(a)Make certain the trip link (83) is not frozen in the reject position. (b)Make certain the changer control lever (45) is not binding and that it actuates the trip link (83) when the changer control knob (28) is turned to reject. (c)Check for binding of trip pawl, trip lever (81) and pawl lever (79); these must be free to turn easily. (d)Check the changer control linkage, (38) and (45).
Noise during playing of record.	1.Motor rumble.	If a low-pitched rumbling sound comes from the loud speaker while a record is being played, check motor grommets to be sure the motor is freely suspended on them. The motor lead wires should have slack to allow the motor to float. Motor rumble may also come from an unbalanced motor rotor, in this case, replace the motor.
	2.Defective turntable bearings (8).	Defective turntable bearings can cause rumble. Check for foreign matter in the bearing, defective balls, binding between balls and ball retainer; rough surface on washers. Clean ball bearing, sleeve bearing, and washers; lubricate with light mineral oil.
	3.Defective motor idler wheel.	A rapid thumping sound while the motor is running may indicate a flat spot on the motor idler wheel. If this condition does not clear up after ten minutes of running time, remove the turntable and check the rubber tire on the idler. If the surface of the rubber tire is not smooth and even, replace the part. Should the bearing of the idler wheel show signs of excessive wear or be extremely wobbly, the idler wheel should be replaced.
	4.Defective record.	Worn or defective records cause needle scratch and distortion of the recorded sound. If the record is warped it may slip on the other records causing "Wow" (a waver in the recorded sound). An enlarged hole in the record can also cause "Wow".
	5.Turntable scrapes.	If a scraping sound occurs as the turntable revolves, check: (a)Turntable warped, causing outer rim to rise and fall.

SYMPTOM	CAUSE	REMEDY
		(b)Motor idler or mounting plate bent.
	6.Squeaks.	Squeaking sound as changer operates indicates lack of oil. Lubricate points indicated under "Lubrication".
	7.7" lever (63) loose.	Check 7" lever screw (64) to see if it is tight.
Distortion of recorded sound.	1.Defective record.	(See "Noise During Playing of Record").
	2.Defective amplifier.	Check phonograph amplifier and speaker.
	3.Bad Cartridge.	Replace.
	4.Bad Needle.	Replace.
No sound during playing.	1.Defective cartridge.	Replace.
	2.Defective wiring.	Check pickup leads for a shorted or open lead.
	3.Defective amplifier.	Check phonograph amplifier and speaker.
	4.Loose cartridge terminal clips.	Remove, squeeze together slightly, and replace.
Excessive record wear.	1.Binding of pickup arm.	(See "Needle Does Not Track Across Record Properly").
Changer does not shut off after last record has been played (refer to exploded view).	1.Record support binding (1).	The record support must drop below the off-set shoulder of the spindle or the changer will not shut off.
	2.Lever assembly binding (71).	Clean out dirt and make sure this operates smoothly.
	3.Shut-off bracket binding.	Check bracket and if bent, straighten.
	4.Shut off lever not engaging locator.	Adjust tab on slide that rotates the locator and trip finger when unit is cycling.
Rough pickup arm motion.	1.Horizontal defects.	(a)Check pickup arm return locator (49) for tightness.
		(b)Check that pickup arm return spring (47) is not weak and is hooked up properly.
	2.Vertical defects.	(a)Lift pin (25) binding; clean out dirt and lubricate.
		(b)Slide and cam (84) binds; check bearing points--clean and lubricate.
		(c)Burrs in main slot in slide and cam (84)--remove with fine file.
		(d)Ejector lever on ejector bracket assembly (90) binding. Straighten, remove burrs, and lubricate.
		(e)Pickup arm shaft and sleeve binding; clean and lubricate.

TROUBLE CHART (Con't.)

SYMPTOM	CAUSE	REMEDY
Noise during change cycle.	1.Tines on the forked end of the slide andcam assembly (84) bent.	Replace.
	2.Lack of lubrication. Grinding noise.	Lubricate ejector lever (90) where it contacts lower end of spindle (101).
Control knob does not detent on "16", "33", '45', or '78' positions.	1.Detent spring off or broken.	Replace.
Cartridge drags on record.	Needle bent.	Replace needle.
	Cartridge mounting screws loose.	Tighten.
Shuts off when last record drops.	1.Shut-off bracket (85) bent.	Straighten or replace.
	2.Record support bent.	Bend down slightly so record support (1) is parallel with the base plate.
	3.Loose shut-off lever assembly (71).	Tighten.
Will not play manually.	1.Trip link (83) bent.	Straighten or replace.
	2.Trip finger cam (54) bent.	Straighten or replace.
Impossible to adjust set-down.	1.Pickup arm shaft and sleeve assembly (54) defective.	Shift the safety plate (24) toward the eccentric set-down adjusting screw (26A), and tighten pickup arm shaft and sleeve nut (22). Hold pickup arm against rear stop and push on trip finger cam (54). The safety plate (24) should move away from the set-down adjusting screw (26A) and snap back when the trip finger cam (54) is released; if it does not, replace the pickup arm shaft and sleeve assembly (54). Hinge pivot screws may be adjusted favoring one side or the other.
Record does not drop when changer cycles.	1.Spindle pusher shaft (101) broken, or bent.	Replace push shaft (101).
	2.Record finger in spindle not moving far enough to eject a record.	The record finger should move forward until it has reached a point flush with, or a maximum of, .010 beyond the spindle body (9). To insure that the record finger is all the way forward, push rod (101) should be raised high enough by the ejector lever to slightly compress the pusher spring. (See "Turntable Stalls During Cycle"). If the spring is compressed and the record finger does not move far enough forward to eject a record, the spindle (9) should be replaced. If a record is not pushed completely off the ledge it may hang on the spindle momentarily, then drop on the pickup arm when it moves in over the turntable.
	3.Check that ball bearing (10) is not missing.	Replace.

SYMPTOM	CAUSE	REMEDY
Two records drop at once.	1.Hole in record too large.	Check the diameter of the hole in the record. An oversize hole will cause two records to drop at once.
	2.Spindle guide not fully down.	If the spindle guide is not all the way down, more than one record may be dropped at a time. (a)Check the guide to be sure it is free and does not bind at any point. Clean out foreign matter or straighten if necessary. Do not oil. (b)When records are placed on the spindle, be sure the guide is all the way down. The guide will normally raise as a record is being dropped, but it should return to place immediately, by gravity.
	3.Record pusher (101) defective.	The record pusher (101) may be deformed, etc. This may cause two records to drop at once. Replace with new pusher or replace spindle assembly.
	4.Slight play in spindle (9).	Tighten spindle set screw (96).
Record hits pickup arm (refer to exploded view).	1.Record finger not moving far enough forward to eject record.	(See "Record does not drop when changer cycles").
	2.Record finger extending beyond outside diameter of spindle.	Cycle changer, by hand, until pusher shaft is at the top of its travel. Using new record as a gauge, pass it over the spindle to see if it binds at any point. File off high points on record finger with a fine file, until record will pass freely over spindle.
	3.Pickup arm not adjusted properly.	(See "Adjustments").
Needle does not set down on 10" record in proper position (refer to exploded view).	1.Pickup arm not adjusted properly.	(See "Adjustments"). (a)Loose nut (22) on pickup arm shaft and sleeve (54).
	2.Pickup arm shaft and sleeve (54) binding.	File off burrs and rough surfaces. Polish and lubricate shaft.
	3.7" set-down lever (63) and 12" record selector (59) not operating properly.	Insure that the proper operation and reset of the 7" set-down lever (63) and 12" record selector (59) is not being interfered with.
	4.Needle bent.	Replace with new needle.
	5.Wire spring (43) broken.	12" record selector (59) does not cock; check for broken 12" record selector spring (43).
	6.Bent pickup arm return locator (49).	Straighten or replace.
	7.Bent trip finger cam (54).	Straighten or replace.

TROUBLE CHART (Con't.)

SYMPTOM	CAUSE	REMEDY
Needle does not set down on 12" record in proper position (refer to exploded view).	1.Diameter of 12" record undersize.	The set-down position of the needle for 12" records is determined by the edge of the record striking the 12" record selector (59). If a 12" record has a diameter of less than the standard size of 11-7/8" plus or minus 1/32", it may fail to depress the 12" record selector far enough.
	2.Enlarged center hole in record.	An enlarged center hole might fail to set the 12" record selector because it could produce the same effect as a small record.
	3.Pickup arm not adjusted properly.	(See "Adjustments"). Page 6.
	4.Binding of pickup arm shaft and sleeve (54).	Clean and polish shaft (54) and lubricate with light oil.
	5.Reset lever spring (67) broken	Replace spring (67).
	6.12" record selector spring (43) broken.	Replace spring (43).
	7.12" record selector (59) binding.	The 12" record selector must be free to operate smoothly. Clean out dirt and straighten if bent, or replace.
	8.Bent pickup arm return locator (49).	Straighten or replace.
	9.Bent trip finger cam (54).	Straighten or replace.
Needle does not set down on 7" record properly.	1.7" set-down lever spring (62) broken or weak.	Replace.
	2.Pickup arm not adjusted properly.	(See Adjustments) Page 6.
	3.7" set-down lever screw (64) loose.	Tighten.
	4.7" set-down lever (63) hitting frame or baseplate where it goes through hole in frame.	Straighten or replace.
	5.Reset lever (68) bent.	Replace.
	6.7" set-down lever (63) does not fall into opening in main gear.	Replace.
	7.Bent pickup arm return locator (49).	Straighten or replace.
	8.Bent trip finger cam (54).	Straighten or replace.

SYMPTOM	CAUSE	REMEDY
Changer does not cycle when record has been played.	1.No finishing trip groove on record.	Check record for eccentric trip groove in center of record. Some old records and home recordings do not have this eccentric trip groove.
	2.Needle jumps out of grooves in record.	(a)Check trip pressure; the lateral pressure should not exceed 3 grams, (if pressure is excessive, see "Changer trips before needle reaches end of record").
		(b)The record may be defective; the finishing groove is often too shallow. Check with a record that is known to be good.
		(c)The needle point may be damaged or affected by an excessive accumulation of dust, lint, etc; check needle pressure as described under "Adjustments".
		(d)There may be binding in the pickup arm shaft and sleeve assembly (54) or between the pickup arm return locator (49) and the trip finger cam (54); (See "Needle does not track properly across record).
	3.Trip pawl binding on gear face.	The trip pawl must be free to move forward and engage the boss on the turntable hub when the trip lever releases it. Check for burrs or foreigh matter lodged between the trip pawl and main gear (76). Do not oil as this might collect dirt and gum up the pawl.
	4.Trip finger cam (54) bent.	Straighten or replace.
	5.Trip link (83) bent.	Straighten or replace.
Changer trips before needle reaches end of record.	1.Hole in record too large.	If the hole in the record is too large, the groove may turn eccentric with the spindle and cause premature tripping.
	2.Binding of trip link (83).	With the trip link released, check the trip link for freedom of motion. It should be free to move without binding.
Needle does not track across record properly.	1.Needle may be clogged by accumulation of lint, dirt, etc. or worn.	(a)Clean foreign material from around needle.
		(b)Check needle to see if the tip is bent or broken. Replace, if necessary.
	2.Trip finger cam (54) does not disengage from the pickup arm return locator (49) when cycle is completed.	There should be a 1/32" gap between the trip finger cam (54) and the pickup arm return locator (49) when the machine is not in cycle.
	3.Check the bearing in the pickup arm post for binding.	(a)Check pickup arm return locator (49) and trip finger cam (54) for binding (See 2 above).
	4.Changer not level.	(See "Leveling Record Changer").
	5.Pickup leads too tight.	Give the pickup leads enough slack to allow the tone arm to move freely across a record.

PARTS LIST

Ref. No.	Part No.	Description
* 1	15253	Record Support Ass'y.
* 2		2903 Record Support Knob
3		14603 Screws
4	1650	"C" Washer
* 5	14750	Turntable Assembly
* 6		14747 Rubber Turntable Cover
7	6877	Bearing Washers
8	6876	Bearing & Retainer
9	6049	Spindle
10	6884	Ball Bearing
11	9823	Screws
* 12	7488	Tone Arm Shell
13	4922	Hinge Pivot Button
14	4923	Pivot Screw
15	7634	Lock Spring
16	7635	Lift Screw
17	6924	Hinge Spring
18	6965	Weight Adj. Spring
19	6963	Tone Arm Clip
20	7316	Cartridge (Sonotone 2TS)
21	9074	Screws, Cartridge Mtg.
22	14498	Keps Nut
23	4937	Safety Spring
24	4339	Safety Plate
25	4327	Lift Pin
26	4072	Hinge Assembly
* 27	5573	Rest Post
* 28	2907	Knob (On-Off-Rej.)
29	1651	"C" Washer
* 30	14734	Knob (Speed Change)
31	2594	"C" Washer
* 32	14746	Baseplate Assembly
33	2909	Spring Washer
34	14651	Speed Control Shaft Assembly
34A	5040	Grommet
35	5551	Speed Control Rod
36	2599	Switch Control Shaft Assembly
37	2916	Screw, Rest Post Mtg.
38	5550	Shut-Off Rod
39	2952	Fibre Washer
40	1652	"C" Washer
41	4172	Compression Spring
42	1720	Speed Nut
43	2563	Spring, 12" Record Selector
44	9823	Screw
45	2284	Control Shaft Assembly
46	467	Switch
47	9533	Return Spring, Pick-up Arm
48	2931	Fibre Insulating Strip
49	6405	Locator & Bushing Assembly
50	2573	Switch Cover
51	5828	Retaining Ring, Locator Plate
52	4212	Retainer, Switch Cover
53	6891	Retard Assembly
54	9565	Trip Finger Cam & Shaft Assembly
55	9557	Retard Lever
56	9510	Anti-Skate Spring
57	9509	Lift Pin Spring
58	1588	"C" Washer
59	2957	12" Record Selector
60	1588	"C" Washer

Ref. No.	Part No.	Description
61	2580	Rubber Bumper
62	2579	Spring, 7" Lever
63	2581	7" Set-Down Lever
64	9849	Screw, #6-32 x 5/16", Washer Head
65	2274	Washer
66	4856	Screw
67	2925	Spring, Reset Lever
68	6007	Reset Lever
69	9849	Screw, #6-32 x 5/16", Washer Head
70	9663	Spring, Shut-Off Lever
71	6966	Shut-Off Lever
72	6880	Spring, Retard Arm
73	6713	Screw
74	1719	"C" Washer
75	9762	Spring Washer
76	6967	Gear Assembly (Complete)
77	1588	"C" Washer
78	4172	Spring
79	5339	Pawl Lever
80	5338	Pawl Spring
81	2569	Trip Lever Assembly
82	1588	"C" Washer
83	4656	Trip Link
84	6970	Slide
84A		Escape Lever (Part of Item 84)
85	6931	Record Support Guide Assembly
86	4857	Screw
87	6897	Record Support Shaft
88	2246	Spring, Slide Bearing
89	9849	Screw, #6-32 x 5/16", Washer Head
90	2211	Slide Bearing
91	2585	Spring, Escape Lever
92	9849	Screw, #6-32 x 5/16", Washer Head
93	14420	Ejector Bracket
94	9823	Screw, #10-24 x 3/8"
95	6968	Die Cast Frame
96	6955	Set Screw
97	5022	"C" Washer
98	6885	Safety Spring
99	6874	Push Rod
100	15061	Motor Assembly (Complete) 110V-60 Cycle
101	1652	"C" Washer
102	1066	Toggle Link
103	6275	Washer
104	1062	Drive Pulley
105	3355	Felt Washer
106	1064	Cup Washer
107	1065	Compression Spring
108	1652	"C" Washer
109	2583	Fibre Washer
110	1060	Idler Wheel
111	1067	Idler Arm Assembly
112	6670	Idler Spring
113	2773	Grommet
114	1061	Mounting Plate Assembly
115	1736	"C" Washer
116	5753	Fibre Washer
117	2797	Belt
118	14826	Needle Protector
119	7113	Reject Spring

* When ordering parts, specify color on those parts designated with an asterisk and mention the number stamped on top of the baseplate (under the turntable) on all correspondence regarding this model.

PHOTOFACT* Folder

EIA MEMBER

WESTINGHOUSE MODELS H-621P6, H-622P6 (Ch. V-2296-1

WESTINGHOUSE MODELS
H-621P6, H-622P6 (Ch. V-2296-1

WESTINGHOUSE MODELS
H-621P6, H-622P6 (Ch. V-2296-1

TRADE NAME	Westinghouse Models H-621P6, H-622P6, (Ch. V-2296-1)
MANUFACTURER	Westinghouse Electric Corp., TV-Radio Div., Metuchen, N. J.
TYPE SET	Battery Operated Portable Transistorized Receiver
POWER SUPPLY	9Volts DC RATING 11/ MA@ 9 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

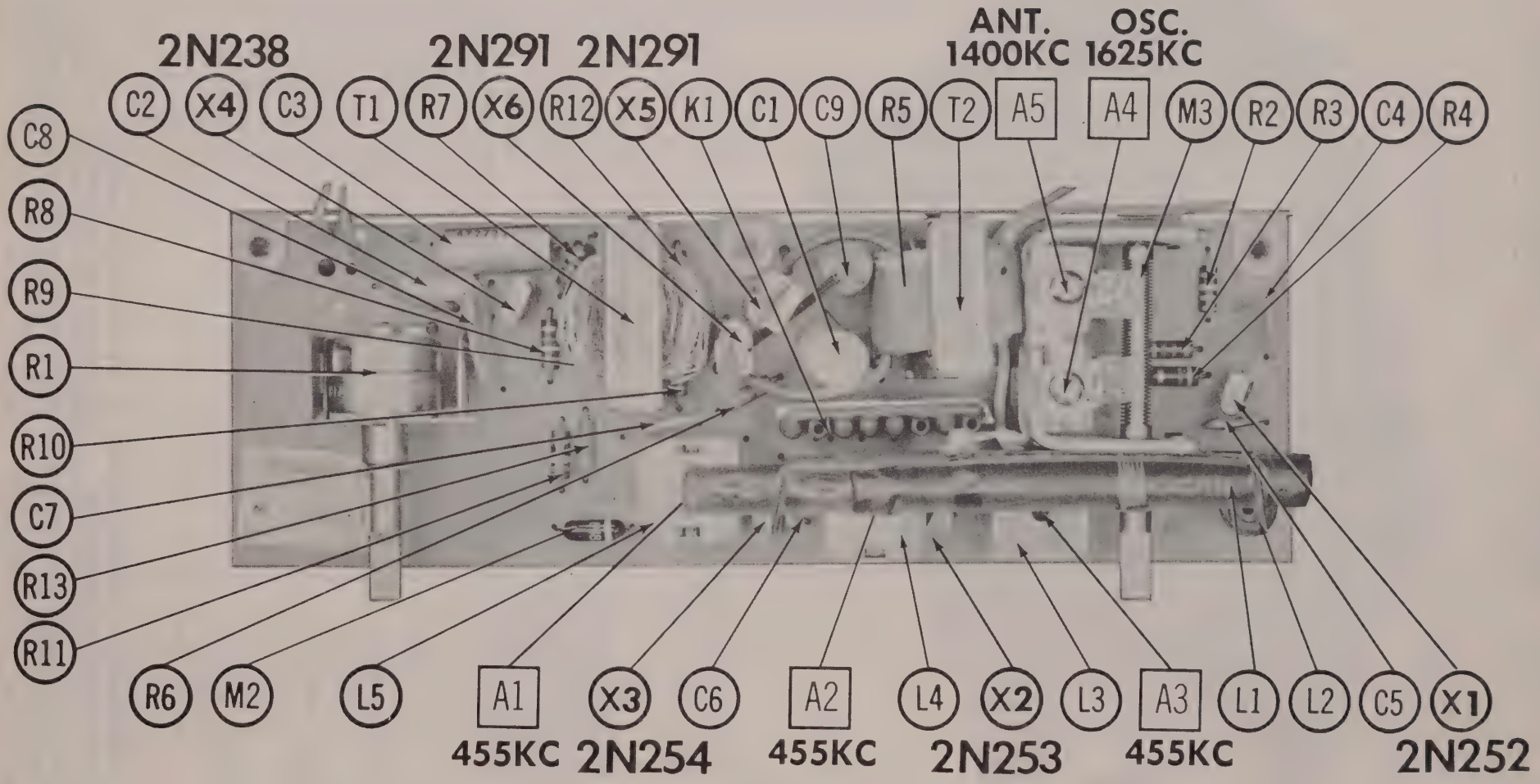
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400~ Mod)	Tuning gang fully open	Across voice coil	A1, A2 A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		Loop	1625KC	Tuning gang fully open	Across voice coil	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		Loop	1400KC	1400KC	Across voice coil	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H391



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			CBS PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N252	Converter		2N485		
X2	2N253	1st. IF Amplifier	2N438			
X3	2N254	2nd. IF Amplifier	2N439			
X4	2N238	Driver	2N180	CK872		
X5	2N291	Output	2N181	CK878		
X6	2N291	Output	2N181	CK878		

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	100	10	218V026M01						R2561 *
B	40	3							
C2	5	12	218V012M09	XPP12005	NL5-15	TT12X5	ML5-15		TE-1127
C3	40	12	218V012M07	XPP12040	NL50-10	TT15X40	ML40-15		R2329 *

* Not Catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	10000		215V101A03	BPD-01	DD-103	BYA6S1	ED-01	DC511	TG-S10	
C5	4700		215V300M04	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	TG-D50	
C6	50000		215V303M03	BPD-05					TG-S50	
C7	50000		215V303M03	BPD-05					TG-S50	
C8	10000		215V101A03	BPD-01	DD-103	BYA6S1	ED-01	DC511	TG-S10	①
C9	.1	200	210V111M03	P288N-1		CUB2P1		GEM-201	2TM-P1	

① Some versions may use 4700mmf in this application (Part#215V300M04).

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1	5000Ω	½	270V027M04					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Westinghouse PART No.	NOTES
	OHMS	WATT		
R2	39K		250V223A93	
R3	8200Ω		250V228A22	
R4	4700Ω		250V224A72	
R5	56K		250V225A63	
R6	1500Ω		250V221A52	
R7	18K		250V221A83	

ITEM No.	RATING		Westinghouse PART No.	NOTES
	OHMS	WATT		
R8	3900Ω		250V223A92	
R9	680Ω		250V226A81	
R10	2200Ω		250V222A22	
R11	39Ω		250V223A90	
R12	10Ω		250V221A00	
R13	220Ω		250V222A21	

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.5:	1	430V035M01						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	250Ω CT	3-4Ω	430V036M01				TR-65		

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Westinghouse PART No.	QUAM PART No.	
SP1	4"x6"	PM	3-4Ω	570V021M01		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					
		Westinghouse PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	Loop Stick	310V015M01					
L2	Osc. Coil	230V029M01					
L3	1st. IF	235V019M01					
L4	2nd. IF	235V019M01					
L5	3rd. IF	235V019M02					

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Westinghouse PART No.	REPLACEMENT DATA
K1	IF Circuitry	2200mmf, 10000mmf, 10000mmf, 470Ω, 1000Ω, 1000Ω 15K, 1000Ω	219V005M01	Erie 709-02

BATTERIES

ITEM No.	VOLTAGE	Westinghouse PART No.	REPLACEMENT DATA								NOTES
			BURGESS		EVEREADY		MALLORY		RAY-O-VAC		
			"A"	"B"	"A"	"B"	"A"	"B"	"A"	"B"	
M1	11/2V		2R		950		M-13		2LP		6Used ①

① One 9V Battery (Eveready #2761) may be used.

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		Westinghouse PART No.	CBS PART No.	SYLVANIA PART No.	
M2	1N87G ①	296V002M01	1N60	1N60	AM Detector, Pigtail

① Alternate type 1N295

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M3	Tuning Cap	330V009M01	2 Gang (Ant. 17-180mmf)

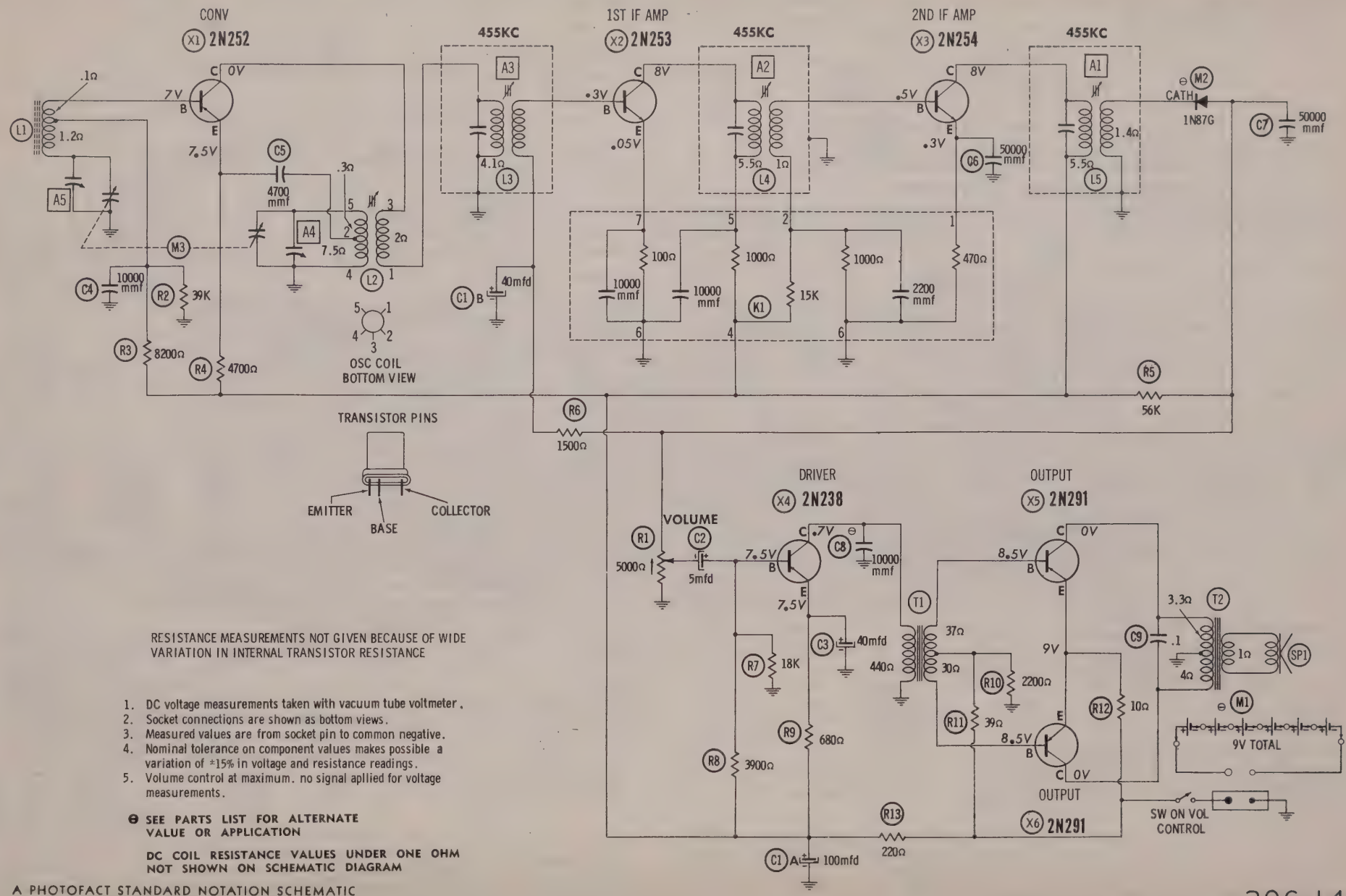
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	550V014M07	Tuning
Knob	550V014M05	On-Off-Volume
Cabinet	513V013M01	Charcoal, Model H621P6
Cabinet	513V013M02	Yellow & White, Model H622P6
Handle	558V062M01	Cabinet

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors



RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum. no signal apllied for voltage measurements.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

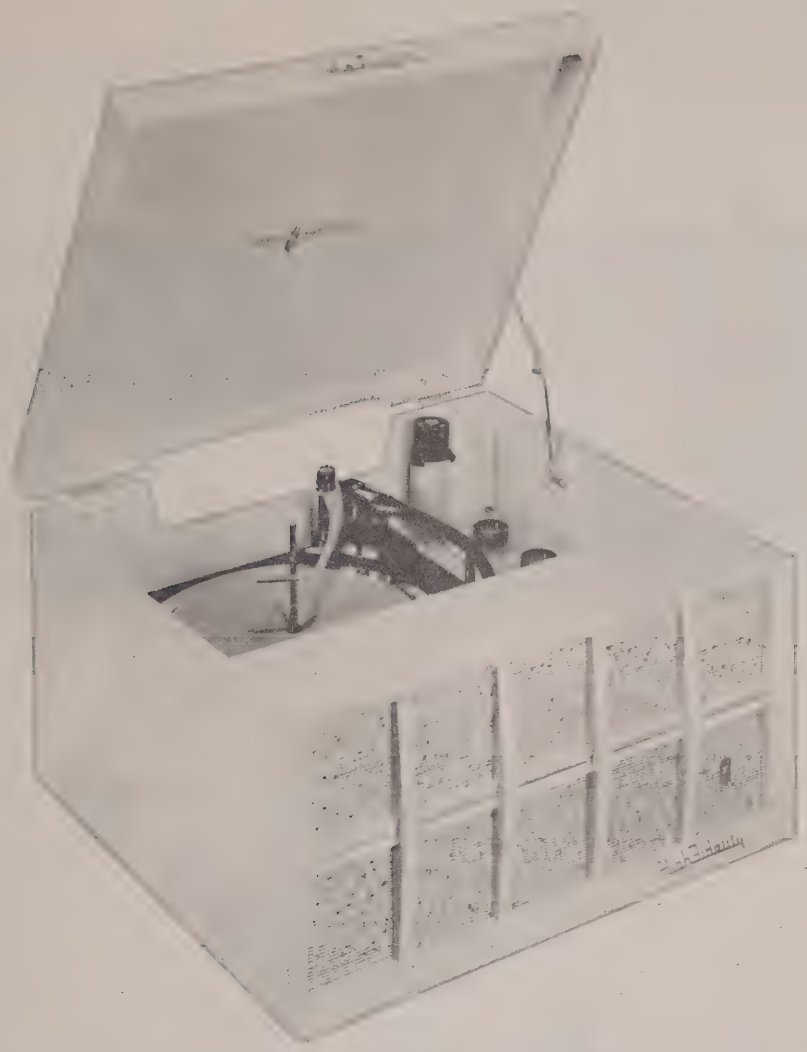
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

EIA

ZENITH MODELS
HF16E, HF16R (Ch. 3AO3)

ZENITH MODELS
HF16E, HF16R (Ch. 3AO3)



ZENITH MODELS
HF16E, HF16R (Ch. 3AO3)

TRADE NAME	Zenith Models HF16E, HF16R (Ch. 3A03)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Illinois
TYPE SET	AC Operated Phono Amplifier With 4 Speed Automatic Record Changer
TUBES (Three)	Types 12AU7 Preamp. - AF Amp., 6V6GT Output, 6X5GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .31 Amp. @ 117 Volts AC (32 Watts Without Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER S-14078 – SEE ZENITH MODEL S-14078 — PHOTOFACT SET 392 FOLDER 15

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H367

SET 396 FOLDER 15

PARTS LIST AND DESCRIPTIONS

ZENITH
MODEL HF16E (Ch. 3A03)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Preamp. - AF Amp.	12AU7	
V2	Output	6V6GT	

ITEM No.	USE	TYPE	NOTES
V3	Rectifier	6X5GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	◓40	350	22-2707	AFH3-43-50	C0344	FP376.9	TMT-39	T-160	TVL-3786
B	■40	350							
C	▲20	350							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	1500		22-12			IR5D15	ED-1500		MS-215	10%
C3	.1	600	22-2782	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C4	470	1000	22-6	HVD-15-470	DD-471	BYA10T47	HD15-470	DC30347	5GA-T47	
C5	47		22-2376							10% N080
C6	.0022	200	22-2837							10%
C7	.22	200	22-2777							10%
C8	.01	600	22-2815					GEM-1611		10%
C9	.033	600	22-2800	P688N-033	DF-303	CUB6S33		GEM-6133	6TM-S33	
C10	3300		22-2670			IR5D33	CY20C332K		MS-233	10%
C11	.047	200	22-2792	P288N-047	DF-503	CUB2S47		GEM-2147	2TM-S47	
C12	10000	1000	22-3	DAC-27	DD16-103	BYA10S1M		GEM-1011	BL-S10	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1.5meg	½	63-4017					Loudness, Tap @ 800K
B	Shaft							
R2A	250K	½	63-4016	B-51	A47-250K-Z	Q13-130	U44	Treble
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	3meg	½	63-4015	B-84	A47-3meg-S	Q11-140	U59	Bass
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

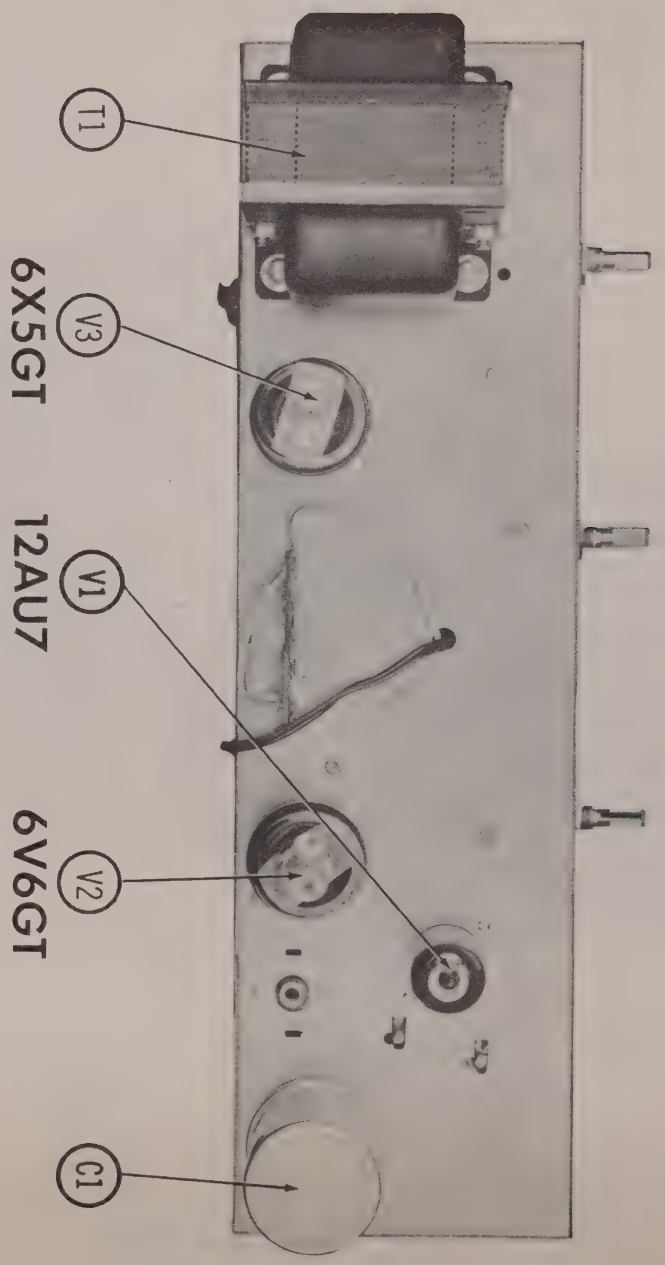
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R4	3.3meg		63-1933	
R5	68K		63-1863	
R6	1800Ω		63-1796	
R7	47K		63-1855	
R8	3900Ω		63-1810	
R9	120K		63-1873	
R10	47K		63-1855	
R11	1500Ω		63-1792	

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	NOTES
R12	68K		63-1863	
R13	1000Ω		63-1785	
R14	470K		63-1898	
R15	180Ω	1	63-2387	
R16	150K		63-1877	
R17	5600Ω		63-1817	
R18	220Ω	1	63-3206	
R19	5600Ω	1	63-3207	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .31A	520VCT @ .057A	6.3V @ 1.3A		95-1392	P9206	P-3148	PC8403	26R31U	R-10A

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	8000Ω	3-4Ω	95-1453	Z1011	A-2902①	A-3824	24S55	S-9X	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	8"	PM	3-4Ω	49-828	8A31	
SP2	3 1/4"	Electrostatic		S-23829		
SP3	3 1/4"	Electrostatic		S-23829		

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	ZENITH PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	142-80	81-TB		56	*PT-2	* Not necessary unless original mounting mechanism is damaged.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	ZENITH PART No.	JENSEN PART No.	WALCO PART No.	
M2				

CABINETS & CABINET PARTS

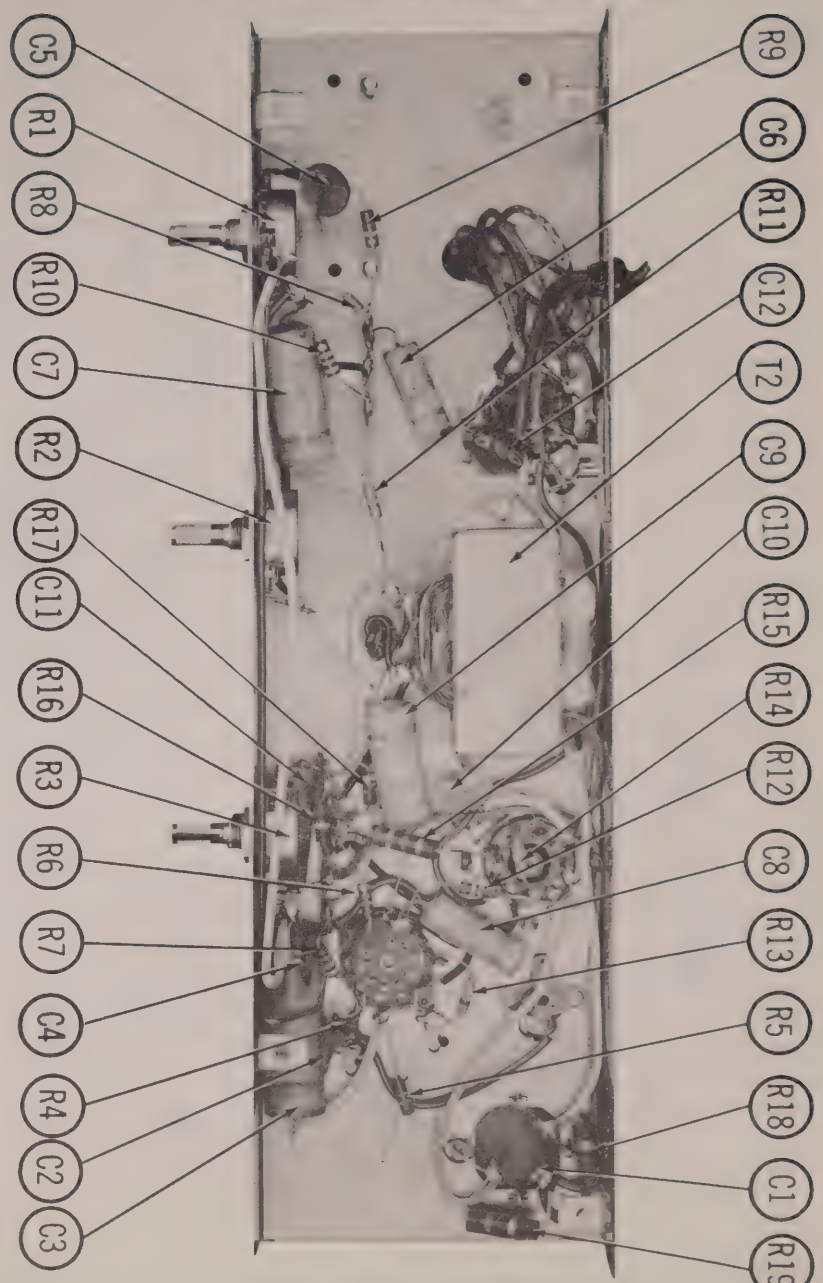
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

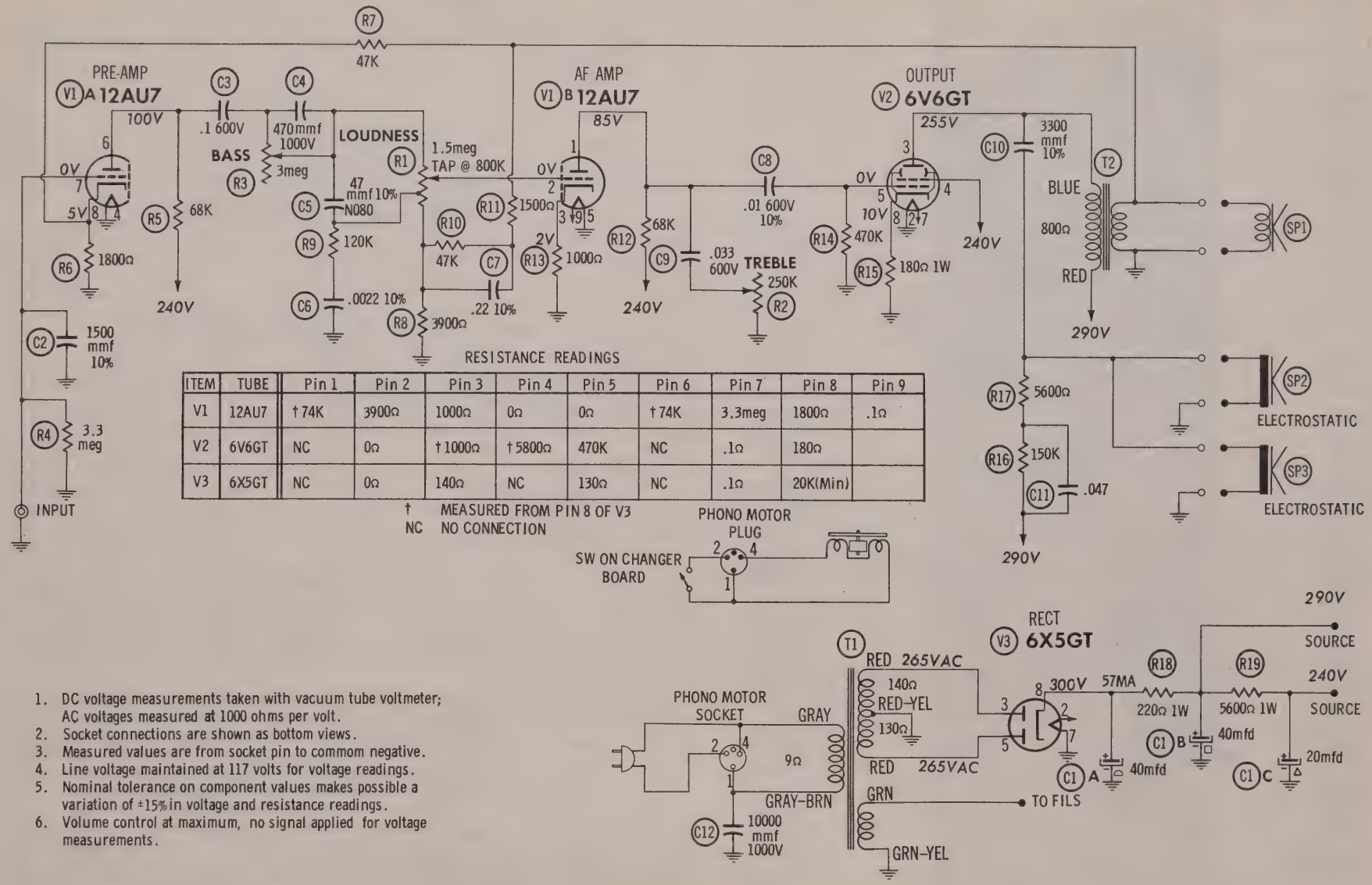
NAME	PART NO.	DESCRIPTION
Knob	46-1828	Bass, Treble, Loudness
Cabinet	14-2264E	Model HF16E
Cabinet	14-2264R	Model HF16R

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW

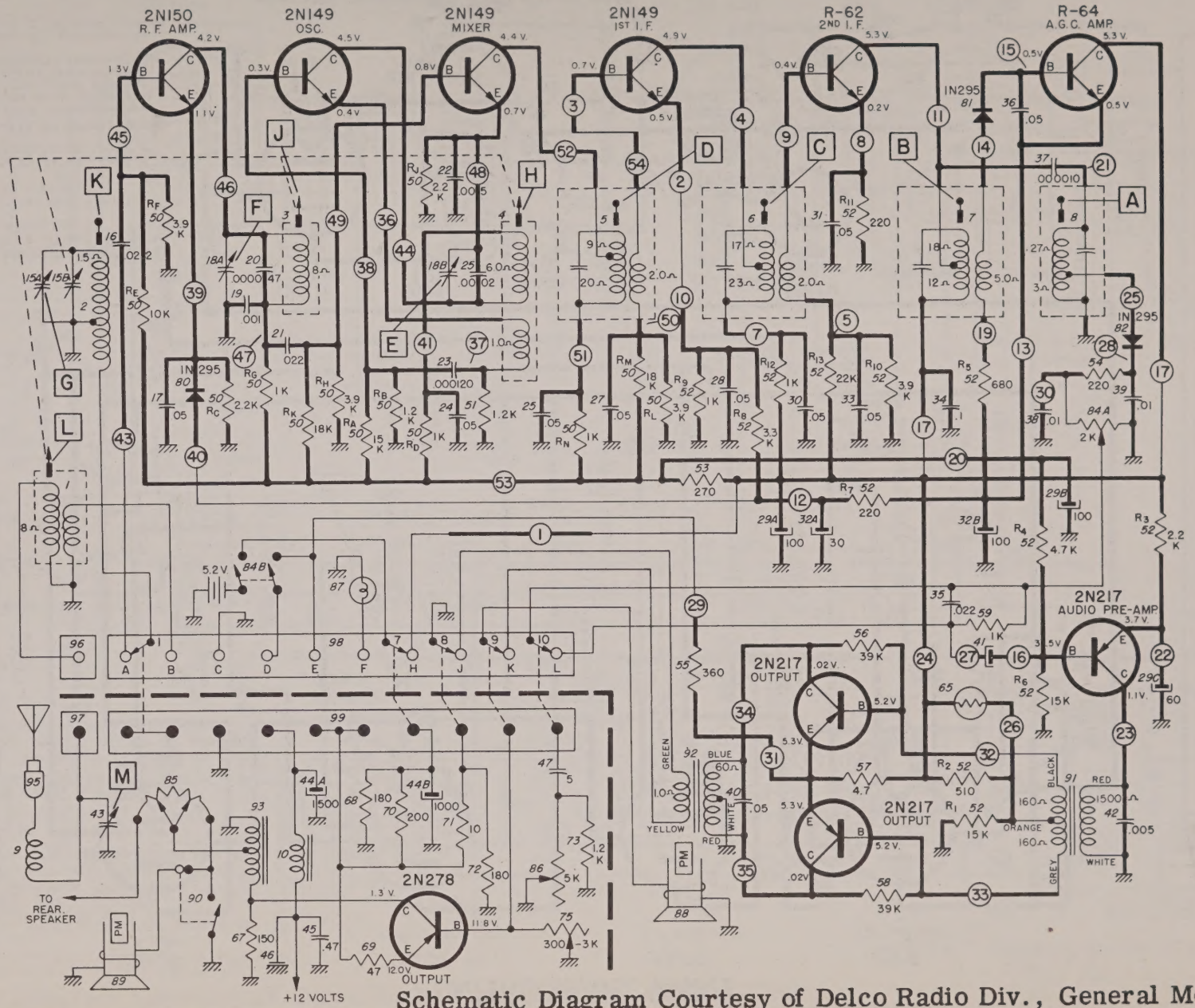




1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

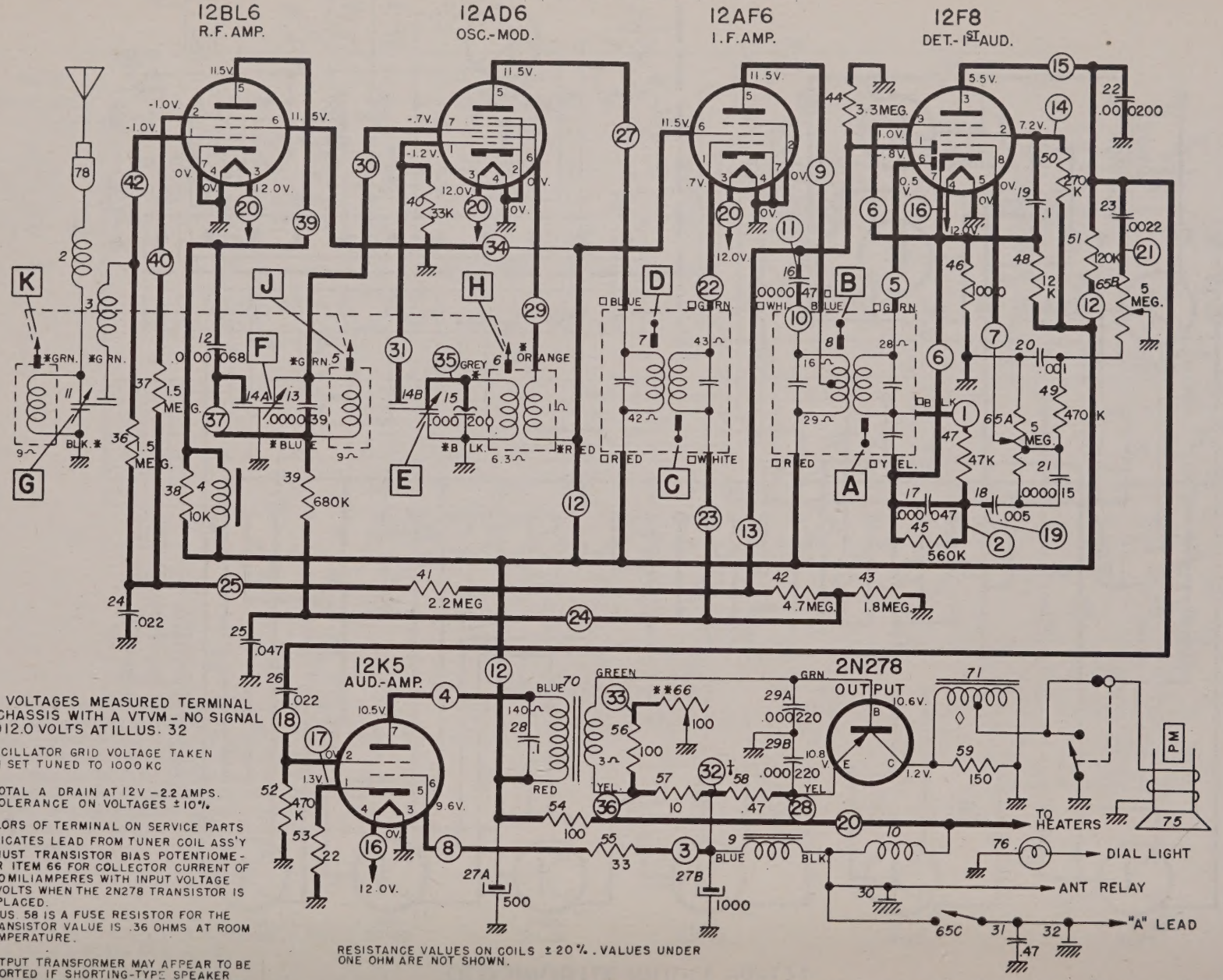
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

OLDSMOBILE MODEL 989131



Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.

PONTIAC MODEL 988822



VOLTAGES MEASURED TERMINAL TO CHASSIS WITH A VTVM - NO SIGNAL AND 12.0 VOLTS AT ILLUS. 32

OSCILLATOR GRID VOLTAGE TAKEN WITH SET TUNED TO 1000 KC

TOTAL A DRAIN AT 12V - 2.2 AMPS. TOLERANCE ON VOLTAGES ±10%.

□ - COLORS OF TERMINAL ON SERVICE PARTS

* - INDICATES LEAD FROM TUNER COIL ASS'Y

** - ADJUST TRANSISTOR BIAS POTENTIOMETER ITEM 66 FOR COLLECTOR CURRENT OF 1050 MILLIAMPERES WITH INPUT VOLTAGE 12 VOLTS WHEN THE 2N278 TRANSISTOR IS REPLACED.

† - ILLUS. 58 IS A FUSE RESISTOR FOR THE TRANSISTOR VALUE IS .36 OHMS AT ROOM TEMPERATURE.

◊ - OUTPUT TRANSFORMER MAY APPEAR TO BE SHORTED IF SHORTING-TYPE SPEAKER SOCKET IS NOT HELD OPEN, NORMAL RESISTANCE IS 1-2 OHMS.

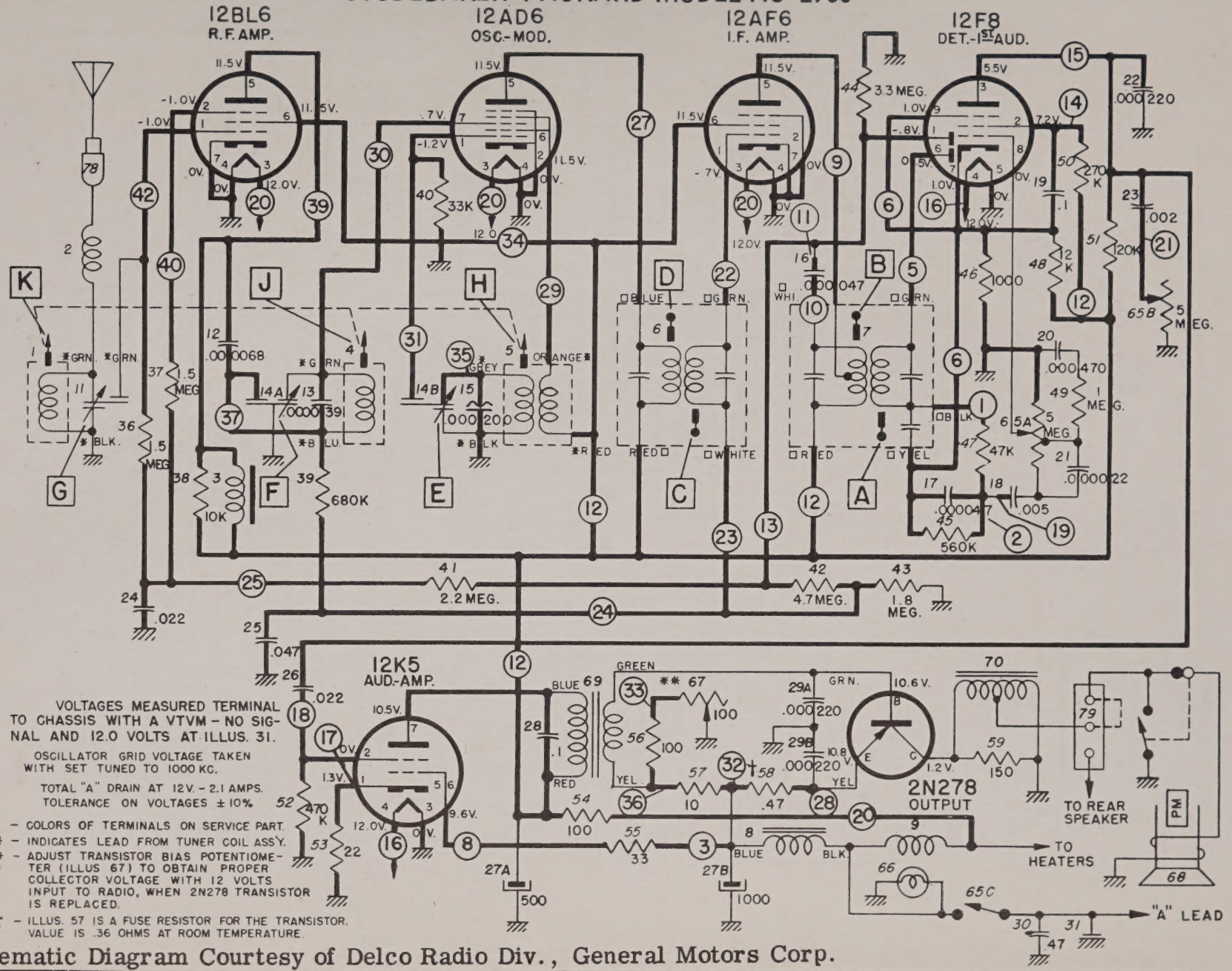
RESISTANCE VALUES ON COILS ±20%. VALUES UNDER ONE OHM ARE NOT SHOWN.

IMPORTANT

THE SPEAKER SOCKET, MOUNTED ON OUTPUT TRANSFORMER, IS A SHORTING-TYPE AND MUST BE MECHANICALLY OPENED WHEN TESTING RADIO ON BENCH.

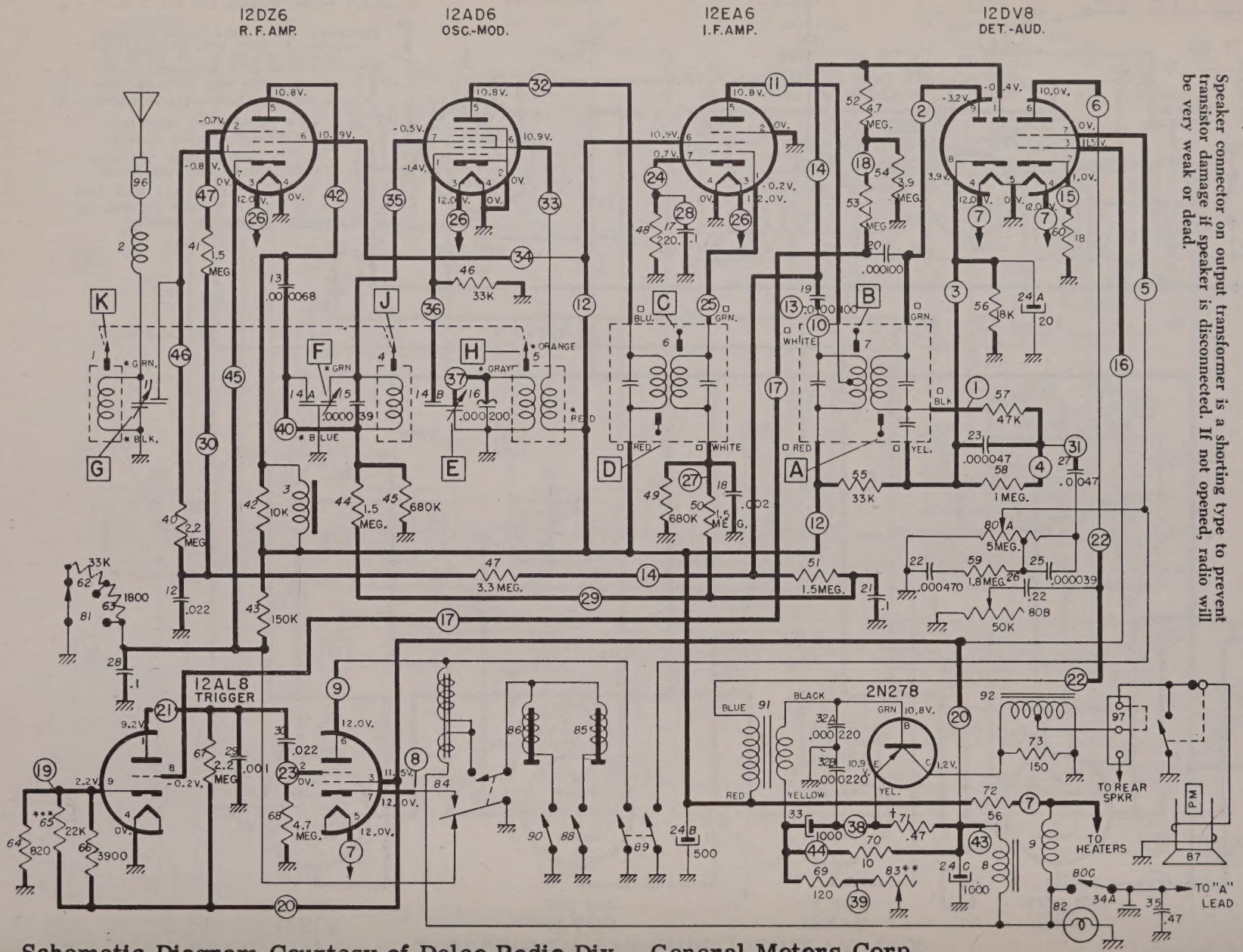
Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.

STUDEBAKER-PACKARD MODEL AC-2906


12BL6
R.F. AMP.
12AD6
OSC-MOD.
12AF6
I.F. AMP.
12F8
DET.-1ST AUD.
12K5
AUD.-AMP.
2N278
OUTPUT
TO REAR SPEAKER
TO HEATERS
"A" LEAD
VOLTAGES MEASURED TERMINAL TO CHASSIS WITH A VTVM - NO SIGNAL AND 12.0 VOLTS AT ILLUS. 31.
OSCILLATOR GRID VOLTAGE TAKEN WITH SET TUNED TO 1000 KC.
TOTAL "A" DRAIN AT 12V. - 2.1 AMPS.
TOLERANCE ON VOLTAGES ± 10%
□ - COLORS OF TERMINALS ON SERVICE PART.
* - INDICATES LEAD FROM TUNER COIL ASS'Y.
** - ADJUST TRANSISTOR BIAS POTENTIOMETER (ILLUS 67) TO OBTAIN PROPER COLLECTOR VOLTAGE WITH 12 VOLTS INPUT TO RADIO, WHEN 2N278 TRANSISTOR IS REPLACED.
† - ILLUS. 57 IS A FUSE RESISTOR FOR THE TRANSISTOR. VALUE IS .36 OHMS AT ROOM TEMPERATURE.

Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.

STUDEBAKER-PACKARD MODEL AC-2907



Schematic Diagram Courtesy of Delco Radio Div., General Motors Corp.

IMPORTANT!

WHEN RADIO IS OPERATED ON BATTERY ELIMINATOR, THE TUNER MAY STOP SEEKING EVERY TIME A SOLENOID ENERGIZES, DUE TO VOLTAGE REGULATION.

Speaker connector on output transformer is a shorting type to prevent transistor damage if speaker is disconnected. If not opened, radio will be very weak or dead.